

# THE ALCYONACEA OF SOUTHERN AFRICA. STOLONIFEROUS OCTOCORALS AND SOFT CORALS (COELENTERATA, ANTHOZOA)

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(With 45 figures and 1 table)*

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## ABSTRACT

Of the eleven families of stoloniferous octocorals and soft corals recognized worldwide, seven are represented in southern Africa. These are the families Clavulariidae, Tubiporidae, Coelogorgiidae, Alcyoniidae, Nidaliidae, Nephtheidae, and Xeniidae, which are recorded from African coastal waters south of the 20°S. Twenty-five species representing twelve genera are illustrated and described in detail from material housed in the collection of the South African Museum, Cape Town. The majority of this material has been collected since 1983 using dredges and SCUBA diving. This has allowed for many observations of living material *in situ* and in aquaria. Thirty-three additional species are mentioned that appear in the literature but for which satisfactory material is presently not available for examination. Presently undetermined species representing 15 genera are also mentioned. Four soft coral genera are here considered southern African endemics: *Acrophytum*, *Malacacanthus*, *Pieterfaurea*, and *Verseveldtia*. Six genera are here recorded from southern Africa for the first time: *Sarcodictyon*, *Telestula*, *Carijoa*, *Minabea*, *Siphonogorgia* and *Nephthea*.

Scanning electron micrographs of sclerite form accompanies the descriptions of almost all species. New information has allowed re-evaluation of several species and the alteration of their taxonomic status. This includes recent observations on intraspecific variation. A key to all identified genera and species presently known to occur in southern Africa is provided.

This account of the regional soft coral and stoloniferous octocoral fauna comprises seven families, 32 genera and 78 species, which includes 28 genera, and 26 identified species that are here considered valid and to occur in southern Africa. At least 12 additional species have recently been collected that represent undescribed species; these have not been included in the present study.

From an assessment of all collected material and literature sources, as well as the numbers of new records and new species recently obtained by dredging and diving surveys, it is estimated that at least 90 species of soft corals and stolonate octocorals occur in southern Africa.

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## INTRODUCTION

Coastal southern Africa, from the Skeleton Coast of Namibia to the region of Beira in Mozambique, has a remarkably rich and diverse benthic fauna. The octocoral cnidarians are no exception, as at least 200 species may be present, with an extremely high percentage of endemism, perhaps 60–70 per cent. Many species are restricted to the region between the Cape of Good Hope and Natal, whereas the extensive Agulhas Bank is probably a centre of adaptive radiation for the region.

The regional fauna has one other primary component in addition to this endemic constituent: the Indo-Pacific element. This component, along with Atlantic, cosmopolitan, widespread, or scattered species, account for the remainder of the fauna (30–40 per cent).

The present survey represents the second paper in a series of three covering the octocorals of southern Africa that have been identified and recorded to date. The pennatulaceans have been described in a previous paper (Williams 1990a). Stoloniferans and soft corals are dealt with in the present paper. Gorgonian octocorals will be dealt with in a subsequent paper.

The stoloniferans (families Clavulariidae, Tubiporidae, and Coelogorgiidae) are relatively simple octocorals characterized by having low and rounded or cylindrical to tubular polyp calyces that are separate and individually placed. These arise from a thin ribbon-like or reticulating stolon that adheres to the substratum. Colonies have separate or fused sclerites. The soft corals (families Alcyoniidae, Nidaliidae, Nephthidae, and Xenidae) are characterized by having polyps aggregated or concentrated into polyparies. The colonies are fleshy and the gastric cavities of the polyps extend to near the base of the colony through soft coenenchymal tissue which may or may not be impregnated with sclerites. An internal medulla or axis is absent. The stoloniferous families Taiaroidae, Cornulariidae and Pseudogorgiidae, and the soft coral families Paralcyoniidae and Asterozoniidae, are not known to occur in southern Africa and are therefore not included in the present study. The old ordinal names 'Stolonifera' for the stoloniferans and 'Alcyonacea' *sensu stricto* (i.e. reserved for soft corals) are considered by Bayer (1981b: 943) to be of no taxo-



nomic value. The ordinal name Alcyonacea, as used here, follows the proposal of Bayer, and includes all non-helioporacean and non-pennatulacean octocorals.

The first large-scale collecting of South African octocorals was made by the S.S. *Pieter Faure* during dredging and trawling surveys between 1898 and 1907. The most important literature sources describing species from the regional soft coral and stoloniferous octocoral fauna include Hickson (1900, 1904), Kükenthal (1906), Thomson (1910, 1921, 1923), Molander (1929b), Broch (1939), and Tixier-Durivault (1954, 1960). Day *et al.* (1970) and Day (1974) listed the distributions of many common species; Branch & Branch (1981) provided colour and black-and-white photographs of a few of the most common intertidal and shallow subtidal species; and Williams (1986a, 1986b, 1987a, 1987b, 1988, 1989b, 1990b) gave detailed descriptions of several species.

The benthic environment of southern Africa is extremely varied. A very high percentage of endemism is evident. Day *et al.* (1970: 2) reported that approximately 66 per cent of the benthic invertebrate species from False Bay are South African endemics. Millard (1978: 182) concluded that, with regard to the hydroid fauna, zoogeographical characteristics point to an active centre of evolution in the South African region. This can be applied to other invertebrate groups as well. Williams (1986b, in press a, in press b) provide a more detailed account of the regional zoogeography and geographical definition, particularly regarding the octocoral fauna. Species of soft corals and stoloniferous octocorals in this study have been collected from the littoral (e.g. *Alcyonium fauri*) to a depth of 468 m on the edge of the continental shelf (e.g. *Anthomastus giganteus*). Areas of concentrated collecting with regard to recently procured material include (from west to east): the Atlantic coast of the Cape of Good Hope Peninsula, False Bay, the Danger Point–Dyer Island region, Cape Agulhas and the Agulhas Bank, Algoa Bay, the offshore region between East London and southern Natal including Transkei, the Durban area, and Sodwana Bay. Older records include scattered localities along the west coasts of the Cape Province and Namibia, many south and east coast localities, Inhaca Island, and southern Mozambique.

The classification system used in this study at the ordinal and familial levels conforms to Bayer (1981b). Nomenclature conforms to the trilingual glossary of Bayer *et al.* (1983). The abbreviation SAM refers to the South African Museum.

## MATERIALS AND METHODS

Recently procured material was collected by means of intertidal collecting, snorkelling, SCUBA diving, or dredging from the littoral zone to 500 m in depth at many localities between Cape Columbine on the west coast of South Africa to Sodwana Bay, northern Natal.

Live material was relaxed in a solution of magnesium chloride and seawater, then preserved in 70 per cent ethanol. Some particularly delicate colonies were first fixed in buffered 10 per cent formalin before transfer to ethanol.

Sclerites were isolated by excising a small piece of tissue ( $<10 \text{ mm}^3$ ) and placing it in a small vial with a few drops of concentrated sodium hypochlorite to disassociate the sclerites from the tissue. Sclerites were then washed repeatedly in water, and finally transferred to ethanol. The sclerite and alcohol suspension was then pipetted on to microscope slides. Canada balsam was used as a permanent mounting medium, whereas glycerine was used for temporary purposes. Drawings from dissecting or compound microscopes were made using a camera lucida.

Scanning electron micrographs were made with a Cambridge S180 or S200 SEM. Alcohol suspensions of minute sclerites were pipetted on to circular pieces of exposed and developed black-and-white photographic paper, which were glued to the surface of a stub. Larger sclerites were arranged individually on a stub with a fine camel-hair brush and SEM glue.

## SYSTEMATIC ACCOUNT

### KEY TO THE FAMILIES OF STOLONIFEROUS OCTOCORALS AND SOFT CORALS IN SOUTHERN AFRICAN COASTAL WATERS

- 1A. Colonies attached to substrata by narrow basal stolons, or stolon reduced to a spreading holdfast, or stolons form multi-layered platforms (Figs 1D, 7A) ..... 2
- 1B. Colonies without true stolons. Colonies attached to substrata by basal holdfast or membranous sheets (Fig. 16A) ..... 4
- 2A. Colonies with stolons forming multi-layered platforms above the substratum ..... **Tubiporidae**
- 2B. Colonies arborescent with a spreading holdfast or colonies forming a single layer with separate polyps arising from a basal stolon ..... 3
- 3A. Colonies arborescent, polyps not retractile, distinct anthosteles not present. Stolon reduced to a spreading holdfast ..... **Coelogorgiidae**
- 3B. Colonies composed of separate polyps arising from a basal stolon, anthocodiae retractile into distinct anthosteles or into base of polyp. Stolons well developed, rounded, flattened, ribbon-like or reticulate ..... **Clavulariidae**
- 4A. Mesenterial filaments two. Sclerites, if present, are reduced to minute circular or oval platelets ( $<0,05 \text{ mm}$  in diameter). Shallow water, usually littoral to 30 m; Indo-Pacific, central Transkei to Mozambique .. **Xeniidae**
- 4B. Mesenterial filaments eight. Sclerites usually present, conspicuous, densely distributed, and of variable form. Littoral to 500 m; entire coastline ..... 5
- 5A. Polyps grouped together in clusters or catkins, adjacent polyps sharing a common base. Polyps with a non-retractile base (a stalk) composed of dense sclerites ..... **Nephtheidae**
- 5B. Polyps separate, not grouped together into clusters or catkins. Polyps sometimes with a basal calyx composed of sclerites, but often totally retractile into coenenchyme of colony ..... 6

- 6A. Colonies usually fleshy, sclerites usually  $<1$  mm in length and not generally longitudinally disposed, sclerites sometimes reduced or absent. Calyces present or absent ..... **Alcyoniidae**
- 6B. Colonies with a rigid consistency, outer surface rough, containing large tuberculate sclerites, longitudinally placed, permanent calyces present ..... **Nidaliidae**

## DESCRIPTIONS

Family **Clavulariidae** Hickson, 1894

Stoloniferous octocorals that encrust hard or firm objects such as rock, mollusc shells, coral fragments, sponges and worm tubes. Anthocodiae retractile into low conical, cylindrical, or tall tubular anthosteles. In addition to basal stolons, polyps may be linked laterally by some elevated stolonial bars but not by an elevated series of transverse calcareous platforms. Sclerites numerous; usually thorny or tuberculate rods, spindles, or needles; sometimes fused.

Three subfamilies are currently recognized with 14 genera of cosmopolitan distribution.

## Subfamily Clavulariinae Bayer, 1981a

Anthosteles longer than wide; cylindrical, tubular or slightly clavate. Polyps usually solitary; secondary, lateral polyps rarely if ever bud from main polyps. Sclerites tuberculated rods, spindles, and crosses; sometimes fused.

Four genera.

Genus *Clavularia* de Blainville, 1830

*Clavularia* de Blainville, 1830: 464. Bayer, 1956: F184. Tixier-Durivault, 1966: 19. Weinberg, 1978: 143.

*Diagnosis*

Calyces cylindrical, arising from band-like or spreading stolons. Sclerites numerous, usually spiny spindles, rods, or needles.

Approximately 40 described species; widespread, Atlantic and Indo-Pacific.

*Type species.* *Clavularia viridis* Quoy & Gaimard, in Milne Edwards & Haime, 1850; Indo-Pacific.

*Clavularia cylindrica* Wright & Studer, 1889

*Clavularia cylindrica* Wright & Studer, 1889: 258, pl. 43 (figs 9–10). Tixier-Durivault, 1954: 124. Day *et al.*, 1970: 16.

*Remarks*

Tixier-Durivault (1954) merely listed this species, without description or figures, from south of Cape Point at 547 m. Day *et al.* (1970) listed the same without description along the south coast from Cape Point to Jeffrey's Bay up to 20 m depth. Wright & Studer (1889) originally described the species from

Tristan da Cunha at 183–274 m. Because of the lack of descriptions and lack of material for examination, it is impossible to determine if the subsequent records actually pertain to this species. According to Wright & Studer, the cylindrical calyces are 4–6 mm in height with 8 longitudinal ribs. The calyx sclerites are stout thorny spindles up to 0,43 mm in length. Tentacle sclerites are blunt, straight, spiny spindles up to 0,2 mm long. Colour yellowish-white.

I consider the presence of *C. cylindrica* in southern Africa to be dubious.

*Clavularia diademata* Broch, 1939

*Clavularia diademata* Broch, 1939: 5, figs 2–5.

*Remarks*

This species was described from a single small colony from Table Bay at 20 m depth, and has not been recorded since the original description. Broch (1939) assigned this material to the genus *Clavularia* with hesitation and distinguished the species by the presence of 16 points in the anthocodia—8 tentacular (or primary) and 8 inter-tentacular (or secondary) ones. The 8 primary points are joined proximally by a transverse band of tuberculate needles or slender spindles up to 9,4 mm long. The tentacles have a few rod-like sclerites arranged longitudinally. The stolons and calyces have numerous needle-like tuberculated sclerites 0,5–0,6 mm long.

*Clavularia elongata* Wright & Studer, 1889

*Clavularia elongata* Wright & Studer, 1889: 257, pl. 42 (fig. 11).

*Clavularia elongata* var. *africana* Thomson, 1921: 153.

*Remarks*

Thomson (1921) named a new variation of this species, *C. elongata* var. *africana* from Cape Infanta at 77 m, without description or figures. Wright & Studer (1889) described the type locality as 1829 m off the Azores. It is not possible to determine if Thomson's specimen is in fact *C. elongata* without a comparison of material. According to Wright & Studer, the species is distinguished by having tentacles strongly beset with sclerites, and the calyx wall flexible but with numerous large spiny spindles, which are often curved and somewhat club-shaped.

I consider the presence of *C. elongata* as a dubious record for southern Africa.

*Clavularia parva* Tixier-Durivault, 1964

*Clavularia parva* Tixier-Durivault, 1964: 46, figs 7–8.

*Remarks*

This species was described from Ponta Zavora, southern Mozambique, at 590 m depth. Tixier-Durivault (1964) distinguished the species by the low



rotund anthosteles with eight longitudinal ridges, long tubular anthocodia and neck zones strongly impregnated with sclerites of tuberculated spindles, some curved and up to 0.26 mm long. Some sclerites of the stolons may be club-shaped. The species has apparently not been recorded since the original description.

*Clavularia* spp.

*Remarks*

Material assignable to the genus *Clavularia*, representing perhaps two or three species, has recently been collected in False Bay (western Cape), Algoa Bay (southern Cape), off the Transkei Coast, and Sodwana Bay, at 6–490 m (Williams 1989a: 142; in press b). Because of the uncertain status of many of the species described in this genus and the present unavailability of certain specimens for examination, it is not possible to identify this material to species level. Part of the material may be conspecific with species already described for southern Africa and part may represent undescribed species.

Tixier-Durivault (1954: 124, figs 1–2) identified material from a shore station at Port St Johns (Transkei coast) as *Clavularia capensis* (Studer, 1879). Examination of Tixier-Durivault's material has shown that this material actually represents an undetermined species of *Clavularia* and cannot be aligned with Studer's *Anthelia capensis*. Material conspecific with that of Tixier-Durivault has recently been collected from the sublittoral coral reefs of Sodwana Bay, 12–20 m in depth (Williams 1989a, in press b).

*Remarks on the genus Clavularia*

Approximately 40 species have been described world-wide. Many of the original descriptions lack sufficient detail to clearly assign diagnostic features. Thus accurate determination of material to species is very difficult. A revision of the genus, involving a detailed comparison of available type material, is needed.

Genus *Bathytelesto* Bayer, 1981a

*Telesto* (*Telesto*) Wright & Studer, 1889: 260 (*part.*).

*Telesto* Laackmann, 1908: 41 (*part.*). Kükenthal, 1913: 229 (*part.*). Deichmann, 1936: 40 (*part.*).

*Bathytelesto* Bayer, 1981a: 884. Williams, 1989b: 622.

*Diagnosis*

Secondary polyps sometimes arise from walls of primary polyps. Anthosteles long and slender, flaring slightly toward distal ends; walls composed of inseparably fused tuberculate sclerites. Proximal portion of anthostele cavity may or may not be filled with spiculiferous mesogleal intrusive material. Base of anthostele without calcareous lattices.

Two species, one from the northern Atlantic and one from the southwestern Indian Ocean.

*Type species. Telesto rigida* Wright & Studer, 1889, by subsequent designation; Azores.

*Bathylesto tubuliporoides* Williams, 1989b

Figs 2-3

*Bathylesto tubuliporoides* Williams, 1989b: 622-632, text-figs 1-5, pls 1-3.

*Material*

SAM-H3747, off Sandy Point, Transkei (32°39,2'S 28°45,2'E), 450 m, 14 July 1984, many polyps attached to sponge and dead coral, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). H3748, off Rame Head, Transkei (31°50,0'S 29°22,7'E), 65-70 m, 15 July 1982, several polyps attached to bits of shell, dredge, coll. Natal Museum (R.V. *Meiring Naude*). H3749, off East London (33°10,3'S 28°06,2'E), 100 m, 17 July 1984, several polyps attached to rock, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). H3750, off Sandy Point, Transkei (32°39,2'S 28°45,2'E), 450 m, 14 July 1984, many polyps attached to sponge, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

*Description*

The polyps examined range from 5-13 mm in length, 1 mm in width at the base and 1,5-2,0 mm in width at distal end. Anthosteles are clavate or trumpet-shaped, straight, curved or bent. Primary polyps with or without secondary polyps budding from anthostelar walls. Stolons flattened, encrusting surface of rocks sponges, dead corals, or shells. Wall of polyp tube brittle and inflexible; composed of inseparably fused sclerites that do not disassociate in concentrated sodium hypochlorite. Free and partially fused sclerites are highly irregular in shape and variously tuberculated, mostly rods, spindles, and antlers. Anthocodiae are capable of complete retraction into anthosteles and have 8 strong interseptal points, and slender and sparsely thorny spindles arranged more-or-less longitudinally; no crown is developed. Free sclerites up to 0,3 mm in length. Basal region of polyp tube filled with a matrix of intrusive mesogleal material containing partially fused, branched sclerites; no calcareous tubules or canals present. Colour of colonies white or greyish-white to brownish-white.

*Distribution*

Presently known only from the eastern Cape, Transkei, and Natal coasts of South Africa, depth 65-450 m. Type locality is Transkei.

*Remarks*

The species differs from *Bathylesto rigida* (Wright & Studer, 1889) and *Rhodelinda gardineri* (Gohar, 1940) by the following combination of characteristics: highly irregular form of the free sclerites, possession of spiculiferous mesogleal matrix in the proximal region of the gastric cavities, possession of secondary and tertiary polyps in some colonies, and anthocodia with 8 strong

interseptal points, sclerites arranged longitudinally, crown not evident. *Bathytelesto rigida* is known from west of the Azores at 3 064 m, whereas *R. gardineri* has been collected from Subantarctic islands (Tristan, Gough, and Macquarie), 40–180 m in depth. See Williams (1989b) for a discussion of problems in distinguishing the several genera related to *Bathytelesto*.

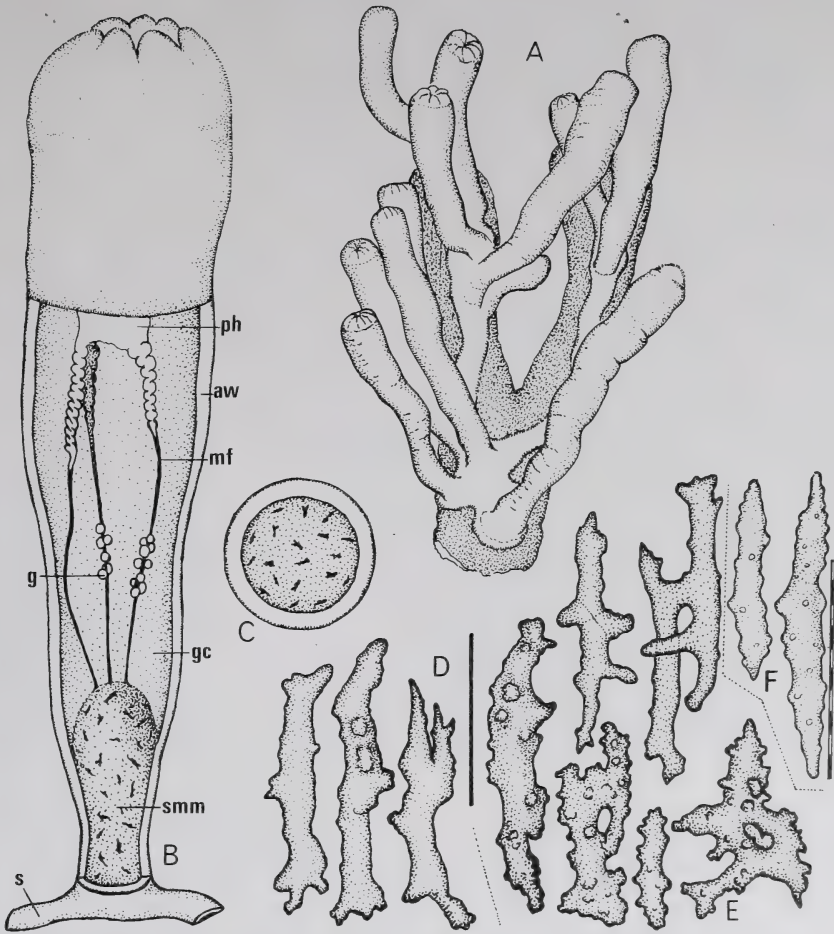


Fig. 2. *Bathytelesto tubuliporoides* Williams, 1989b. A. Colony growing on a dead coral fragment; total length of figure 20 mm. B. Single anthostele with anthocodia retracted, proximal portion of anthostele cut longitudinally to reveal internal structure; total length of figure 10 mm. C. Transverse section through base of anthostele showing a non-partitioned gastric cavity filled with spiculiferous mesogleal matrix; total diameter of figure 1 mm. D. Three sclerites from the spiculiferous mesogleal matrix. E. Free and partly fused sclerites from the anthostele and interior of stolon. Scale bar for D–E = 0.2 mm. F. Two anthocodial sclerites; scale bar = 1.0 mm. Abbreviations: aw—anthostelar wall, g—gonad, gc—gastric cavity, mf—mesenterial filament, ph—pharynx, s—stolon, mm—spiculiferous mesogleal matrix.

Genus *Scyphopodium* Bayer, 1981a

non *Cyathopodium* Verrill, 1868: 415.

*Cyathopodium* Madsen, 1944: 11.

*Scyphopodium* Bayer, 1981a: 880.

*Remarks*

The genus was named by Bayer (1981a: 880) to accommodate the species *Cyathopodium ingolfi* Madsen (1944: 12), since *Cyathopodium* Verrill, 1868, applies to a different genus.

Apparently monospecific and widespread, known from the North Atlantic, Mediterranean, and South Africa, from 500 m to over 1 000 m in depth.

*Scyphopodium ingolfi* (Madsen, 1944)

*Cyathopodium ingolfi* Madsen, 1944: 12, figs 9–14.

*Scyphopodium ingolfi* Bayer, 1981a: 881, fig. 2.

*Material*

SAM–H3795, off Leven Point, northern Natal (27°59,5'S 32°40,8'E), 550 m, 22 May 1976, heavy dredge, coll. S.A. Museum (R.V. *Meiring Naude*). Determinations by F. M. Bayer and H. Zibrowius.

*Description*

According to Madsen (1944) and Bayer (1981a), the species is characterized by rigid encrusting stolons and cylindrical anthosteles usually less than 5 mm in height with rigid body walls composed of fused, branching sclerites. Basal portion of anthostele with 8 longitudinal canals formed by thin calcareous septae. Canals filled with intrusion of fused sclerites. Upper part of anthostele and anthocodia with free sclerites of tuberculated rods and crosses less than 0,1 mm in length. Colour white.

*Distribution*

The species is reported from the Azores, Crete, Iceland, Agulhas Bank south of Knysna (Cape Province), and northern Natal, South Africa (Bayer 1981a: 883; Williams in press a). Type locality is south of Iceland.

*Remarks*

The proximal portion of a single anthostele and part of a stolon (SAM–H3795) attached to the base of a dried skeleton of the solitary scleractinian coral, *Trochocyathus rawsonii* (sensu Gardiner 1904, non Pourtales, 1874) (SAM–H3191), is held in the SAM collection. This partial specimen is insufficient material to give an adequate description of the species. (See Bayer (1981a: 881) and Madsen (1944: 11) for detailed descriptions and figures.)



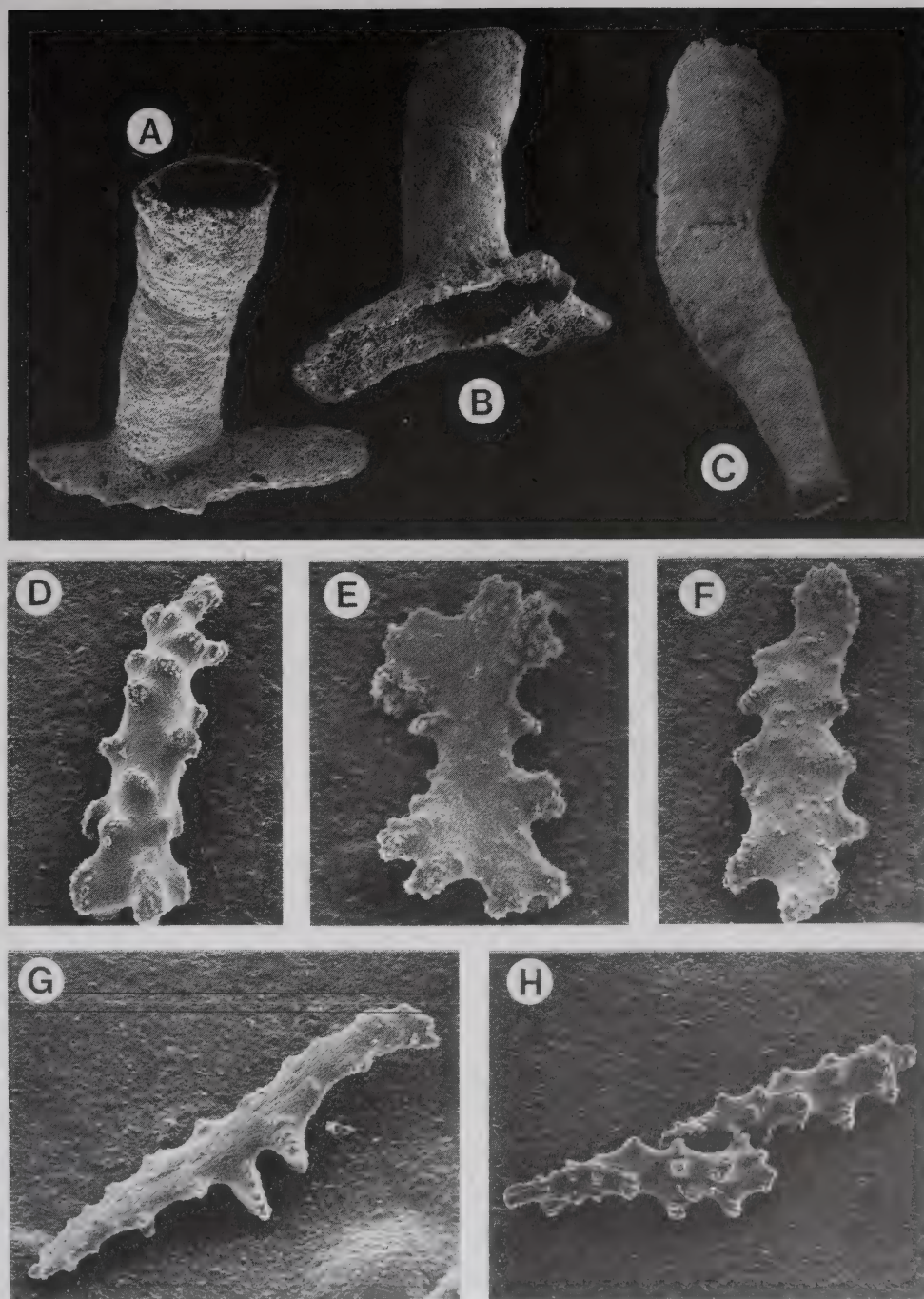


Fig. 3. Scanning electron micrographs of *Bathytelesto tubuliporoides* Williams, 1989b. A. A single anthostele, 3,0 mm in length, with anthocodia removed. B. Same, showing under-view of stolon. C. Another anthostele, 4,6 mm in length. D-H. Free anthostelar sclerites. D. 0,15 mm. E. 0,054 mm. F. 0,10 mm. G. 0,15 mm. H. Both 0,13 mm.

## Subfamily Sarcodictyinae Bayer, 1981a

Polyp calyces low, often retracting almost completely into stolons; or calyces non-retractile, conical to tall cylindrical. Polyps do not bud secondary lateral polyps. Sclerites often slightly flattened to plate-like.

Five genera.

Genus *Sarcodictyon* Forbes, in Johnston, 1847

*Evagora* Philippi, 1842: 36. Kükenthal, 1916: 458. Molander, 1929a: 40.  
non *Evagora* Péron & Lesueur, 1810 (Hydrozoa). Laporte & Gory, 1839 (Coleoptera).  
*Sarcodictyon* Forbes, in Johnston, 1847: 179. Hickson, 1930: 210 (*part.*). Deichmann, 1936: 37.  
Bayer, 1956: F184; 1981a: 885. Manuel, 1981: 36.  
*Rolandia* Lacaze Duthiers, 1900: 424. Weinberg, 1978: 166.

*Diagnosis*

Polyps retractile into stolons forming rounded or conical protuberances. Stolons narrow, often forming reticulating network. Sclerites often somewhat flattened six-radiates or tuberculated rods and crosses. Anthocodial sclerites sparse or absent.

A genus of perhaps 7 species, Atlantic and Indo-Pacific.

*Type species.* *Sarcodictyon roseum* Philippi, 1842 (by subsequent designation); Europe.

*Remarks*

Several examples have recently been collected off the Transkei coast between 240 m and 360 m depth. The reticulating stolons encrust hard objects such as shells, coral rubble and rock. Expanded polyps up to 5 mm in height, cylindrical. Sclerites are six-radiates and rods, very few crosses present. Colour reddish-orange.

The southern African species is indeterminable at present as pertinent literature sources are unavailable. It differs markedly from *S. catenatum* of the Atlantic and *S. roseum* from the Mediterranean by possessing a very low proportion of cross-shaped sclerites.

This study establishes the first record of the genus for southern Africa.

Genus *Scleranthelia* Studer, 1878

*Scleranthelia* Studer, 1878: 137. Molander, 1929: 29. Aurivillius, 1931: 33. Tixier-Durivault, 1966: 19. Bayer, 1981a: 890.  
*Skleranthelia* Studer, 1879: 634. Bayer, 1956: F200.

*Diagnosis*

Calyces rigid non-retractile; conical, cylindrical, or tubular. Anthocodia completely retractile. Stolons often reticulate or membranous. Stolons and calyces covered with large pavement-like layer of contiguous, often flattened, plate-like sclerites.

Two species of the Mediterranean, north Atlantic, and south-western Indian oceans.

*Type species.* *Sarcodictyon rugosum* Pourtales, 1867 (by subsequent designation); Cuba, 494 m in depth.

*Scleranthelia thomsoni* Williams, 1987a

Figs 4–5

non *Skleranthelia musiva* Studer, 1879: 634. Bayer, 1956: F200.

non *Scleranthelia musiva* (Studer, 1879) Thomson, 1921: 153, text-fig. 1, pl. 5 (fig. 1).

*Scleranthelia* sp. indet. Molander, 1929a: 29.

*Scleranthelia thomsoni* Williams, 1987a: 207–218, figs 1–8.

*Material*

SAM-H3687, off East London, eastern Cape Province (33°10,3'S 28°06,2'E), 100 m, 17 July 1984, many polyps attached to coral and sponge rubble, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

*Description*

Mature colonies consist of many crowded polyps arising from band-like or spreading stolons. Calyces rigid, conical, cylindrical, to elongate-tubular, up to 15 mm in length and 3 mm in width. Anthocodiae completely retractile into calyces. Surface of calyces covered with a mosaic of close-fitting (but not fused) plate-like sclerites, 0,5–1,6 mm long. Abcalicular surface usually with rounded protuberances <0,1 mm in diameter. Calicular surface usually densely covered with minute prickly tubercles. Anthocodiae possess narrow rod-like sclerites with sparse rounded tubercles; sclerites 0,20–0,45 mm long. Proximal region of gastric cavities contain a matrix of mesogleal material and numerous unfused irregular and thorny sclerites 0,16–0,32 mm long. These sclerites may be found sparsely impregnating the gastric cavity wall of the calyx and underlying the pavement-like plates of the stolons. Entire surface of calyces and stolons covered with a thin, brownish, horn-like cuticle. Colour of colonies dull yellowish to pinkish-tan or brownish or greyish-white.

*Distribution*

East London to Durban, 85–340 m in depth (Williams in press *a*); probably endemic to southern Africa. Recorded from Tulear, Madagascar by Tixier-Durivault (1966, 1972): an examination of this material is necessary to validate its status. Type locality Gonubie, eastern Cape Province.

Subfamily Telestinae Bayer, 1981a

Primary polyps tall and cylindrical, often with secondary polyps budding laterally; with monopodial branching. Sclerites are thorny, slender rods and spindles or robust, coarsely tuberculated spindles.

Four genera.



Genus *Carijoa* F. Müller, 1867

*Carijoa* F. Müller, 1867: 330.

*Diagnosis*

Axial region of colony interior hollow. Primary polyp long and thin with many lateral secondary polyps. Sclerites are thorny, slender rods and spindles, often branched. Some sclerites may be fused forming clumps. Colour whitish.

Several species of primarily tropical distribution.

*Type species.* *Carijoa rupicola* F. Müller, 1867 (by original designation).

*Remarks*

*Telesto arborea* Wright & Studer, 1889, has been recorded by Tixier-Durivault (1954: 126; 1960: 359) from southern Natal to Inhaca Island, Mozambique, and by Day (1974: 33) from Port Shepstone, Natal, to Inhambane, Mozambique. However, recently collected material from 52 m depth off Durban, and other material labelled *Telesto arborea* and *T. trichostemma* (Dana, 1846) in the South African Museum collection, all possess characteristics common to the genus *Carijoa* (as defined by Bayer 1981b: 906): slender, branching sclerites of the calyx body wall with some sclerites fused forming clumps; sclerites with thorns or prickles; colony colour white.

The two generic names *Telesto* and *Carijoa*, have often been applied to the same species by various authors, whereas Wright & Studer (1889: 262) considered *Carijoa* as a subgenus of *Telesto*. According to Bayer (1981b: 906), *Telesto* differs from *Carijoa* by having robust, blunt spindles, often with ornamentation of outer surface rounded or smooth, and with coarser tuberculation on the opposite surface; walls of axial polyp with one ring of solenia; colony colour reddish to orange.

Because of the need for a revision of these taxa, it is at present not tenable to identify this material to species. The present study establishes a new record of the genus for southern Africa.

Genus *Telestula* Madsen, 1944

*Telestula* Madsen, 1944: 16. Bayer, 1956: F186.

*Diagnosis*

Polyps long and tubular. Base of calyx interior filled with mesogleal intrusion material mixed with sclerites. Polyps commonly solitary but may bud lateral secondary polyps. Stolons may form multi-layered platforms or sheets.

Four species of northern Europe, West Indies, and Indo-Pacific.

*Type species.* *Telestula septentrionalis* Madsen, 1944 (by original designation); Iceland.

*Remarks*

Material recently collected from the Transkei coast at 460 m depth is assignable to this genus. The largest anthostele is 25 mm long and 2.5 mm



wide. The stolon encrusts the surface of a rock and forms a broadened expansion 6 mm in width from which four cylindrical anthosteles arise. The interior of the base of one polyp examined is densely filled with a spiculiferous mesogleal matrix. Sclerites of the body wall are slender to broad spindles or oval plates 0,12–0,54 mm in length, thickly set with coarse tubercles. Colour of colony brownish.

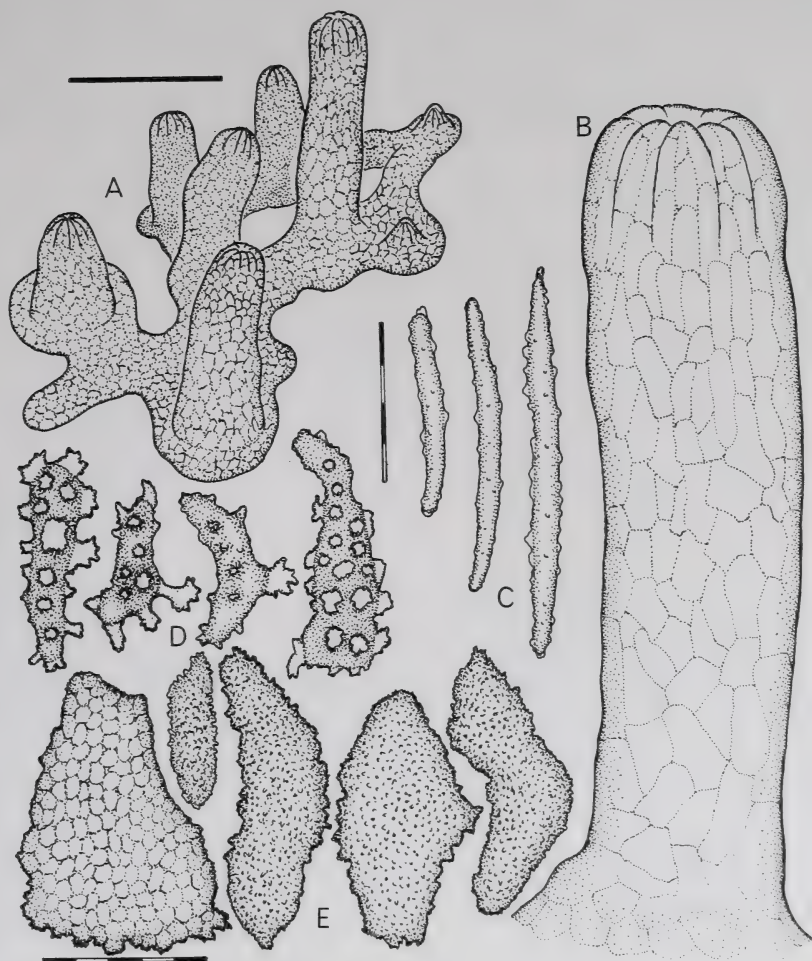


Fig. 4. *Scleranthelia thomsoni* Williams, 1987a. A. An entire colony; scale bar = 10 mm. B. A single anthostele with anthocodia retracted, 12 mm length. C. Three anthocodial sclerites. D. Four sclerites from the spiculiferous mesogleal matrix contained in the basal interior of the polyps. C–D. Scale bar = 0,2 mm. E. Five plate-like sclerites from anthostelar wall, sclerite at left shows outer surface, other four sclerites show inner surface; scale bar = 0,5 mm.

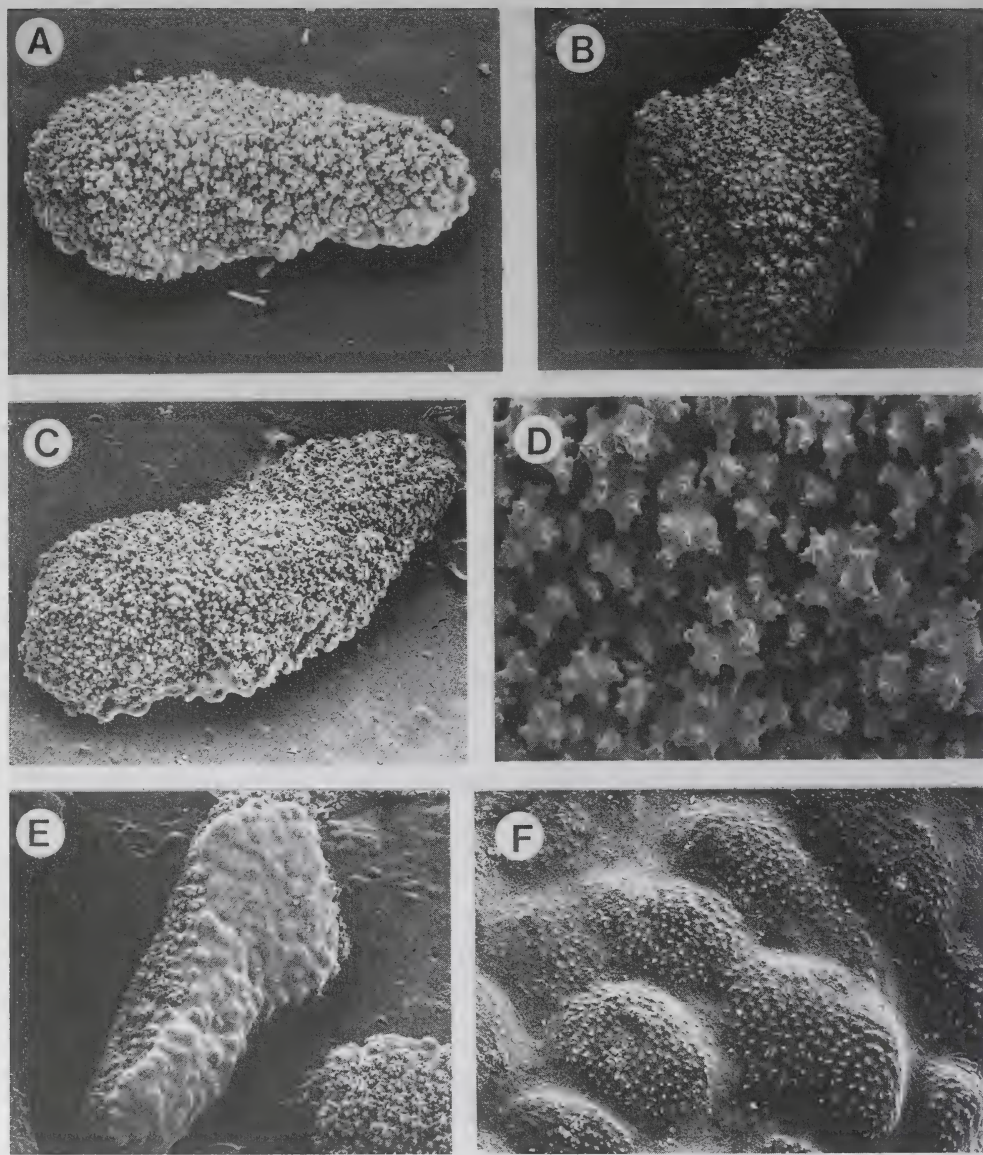


Fig. 5. Scanning electron micrographs of *Scleranthelia thomsoni* Williams, 1987a. A-C. Three plates from the calyx wall showing the inner surface. A. 0,95 mm. B. 1,14 mm. C. 0,9 mm. D. Detail of inner surface from a calicular plate; total length of micrograph = 0,22 mm. E. A calicular plate showing the outer surface; 0,9 mm in length. F. Detail of outer surface of a calicular plate; total length of micrograph = 0,165 mm.

This study represents the first record of the genus to the southern African region. The material has at present not been identified to species as not all pertinent literature sources are presently available.

Family **Tubiporidae** Ehrenberg, 1828

Polyps with lateral connections of multi-layered stolons or transverse platforms, placed at regular or irregular intervals. Anthocodia retractile.

Two genera of the Indo-Pacific.

Genus *Tubipora* Linnaeus, 1758

*Tubipora* Linnaeus, 1758: 789. Bayer, 1956: F184. Tixier-Durivault, 1966: 22.

*Diagnosis*

Anthocodia retractile into calcareous, tubular anthostele. Anthostele walls form rigid tubes of solidly fused sclerites. Polyp tubes joined laterally by an elevated series of transverse platforms that contain solenia. Sclerites of anthocodia free to partly fused; mostly tuberculate spindles. Colonies form rounded clumps. Colour red to reddish-violet.

A monotypic genus of the Indo-Pacific.

*Type species.* *Tubipora musica* Linnaeus, 1758 (by monotypy); Indo-Pacific.

*Tubipora musica* Linnaeus, 1758

Fig. 6

*Remarks*

Characters of the genus. A variable species. Beach-worn skeletons of the organ-pipe coral may be encountered washed ashore in Mozambique and possibly Natal. Living material has been observed at Santa Carolina, Mozambique (G. M. Branch pers. comm.). The diameter of the tubes ranges from 0,7 to 2,0 mm. Distance between adjacent platforms may vary from 5 to 10 mm. Branch & Branch (1981: 151) reported the species as being commonly washed ashore on southern African beaches.

Family **Coelogorgiidae** Bayer, 1981a

Polyps contractile, but not retractile. Polyps not divided into delimited anthocodia and anthostele. Stolon reduced to a spreading holdfast. Colour white.

Monogeneric.

Genus *Coelogorgia* Milne Edwards & Haime, 1857

*Coelogorgia* Milne Edwards & Haime, 1857: 191. Bayer, 1956: F186. Tixier-Durivault, 1966: 24.



*Diagnosis*

Colonies bushy, arborescent. Axial polyps very long. Lateral polyps short and numerous. Axial regions of colonies hollow. Primary polyp wall thickened and penetrated by numerous solenia. Sclerites are tuberculated spindles, some club-shaped.

Presumably a monotypic genus; western Indian Ocean.

*Type species.* *Coelogorgia palmosa* Milne Edwards & Haime, 1857 (by monotypy); Indian Ocean.

*Coelogorgia palmosa* Milne Edwards & Haime, 1857

*Remarks*

Tixier-Durivault (1960: 359) recorded this species from Inhaca Island, southern Mozambique. Tixier-Durivault (1972: 17) listed it from Zanzibar, Inhaca, Aldabra (Seychelles), and Madagascar. The species is not known from any other southern African locality.

Family **Alcyoniidae** Lamouroux, 1812

Colonies membranous or fleshy and upright. Polyps monomorphic or dimorphic; placed singly, not joined into catkins or clusters. Sclerites usually present; most commonly spindles although radiates, capstans, rods, needles, and clubs also occur.

About 15 genera of cosmopolitan distribution, very common in the Indo-Pacific.

Genus *Acrophytum* Hickson, 1900

*Acrophytum* Hickson, 1900: 74. Bayer, 1981b: 913.

*Diagnosis*

Colonies digitiform: unbranched, finger-like. Stalk length usually less than one-half of total length. Polypary conical, elongate, tapering distally with rounded terminus. Polyps dimorphic. Sclerites are primarily tuberculated clubs, or club-shaped spindles, coarsely warty, up to 0,35 mm long. Sclerites dense in surface coenenchyme of polyparium and stalk, sparse or absent in the interior.

A monotypic genus of the southern and eastern coast of South Africa.

*Type species.* *Acrophytum claviger* Hickson, 1900 (by monotypy); South Africa.

*Acrophytum claviger* Hickson, 1900

Figs 7–8

*Acrophytum claviger* Hickson, 1900: 74, pl. 4 (figs 4, 4'). Thomson, 1921: 170; 1923: 47, 69.

Broch, 1939: 11. Bayer, 1956: 188. Alderslade, 1985: 105, figs 1–6.

*Metaclyonium natalensis* Thomson, 1910: 559, pl. 1 (fig. 2), pl. 3 (figs 15, 18), pl. 4 (fig. 39a–c).



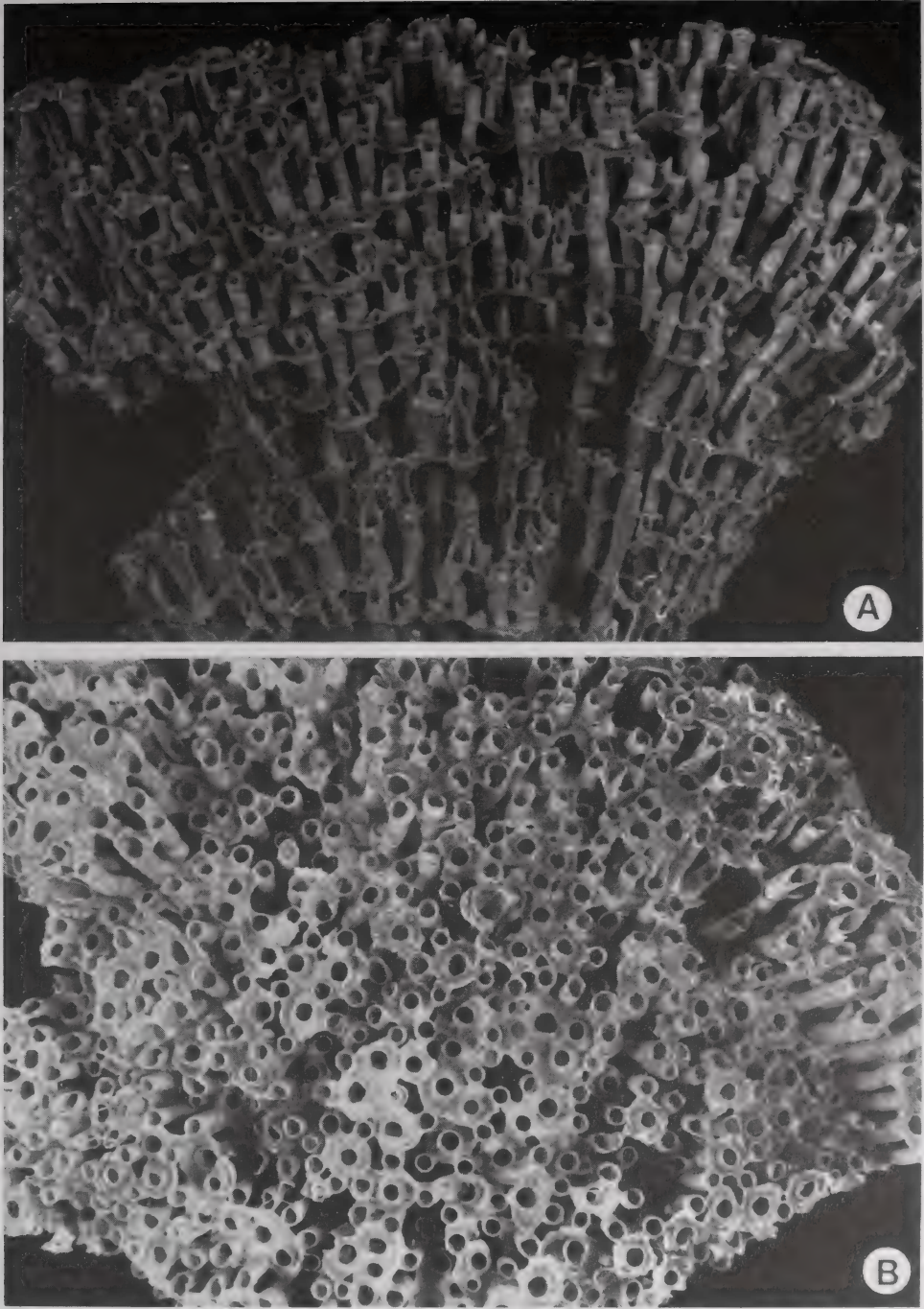


Fig. 6. *Tubipora musica* Linnaeus, 1758. A. Lateral view of a beach-worn skeleton of a colony; length of photograph = 105 mm. B. Dorsal view of same; length of photograph = 95 mm.

### Material

SAM-H967 (paralectotype), Algoa Bay (33°53'15"S 25°51'43"E), 47 m, 6 December 1898, 1 colony, coll. not known. SAM-H910, off Great Fish Point, eastern Cape Province (33°30'S 27°10'E), 64 m, 20 May 1905, 2 colonies, large trawl, coll. S.S. *Pieter Faure* survey, PF 18703. SAM-H911, off Cove Rock south-west of East London (33°06'S 27°49'E), 36–55 m, 6 June 1905, 1 colony, large trawl, S.S. *Pieter Faure* survey, PF 18706. SAM-H1039, off Great Fish Point (33°30'S 27°10'E), 64 m, 20 May 1905, 1 colony, large trawl, S.S. *Pieter Faure* survey, PF 18703.

### Description

Colonies examined are up to 150 mm in length. The stalk varies from one fourth to one-half total colony length, but commonly less than one third. Colonies digitiform, tapering distally, apex rounded. Sharp demarcation between polyparium and stalk. Polyparium elongate-conical or finger-like. Polyps dimorphic although siphonozooids may not be apparent in smaller or tightly contracted colonies <70 mm in length. Autozooids completely retractile. Calyces absent. Extended autozooids approximately 6 mm in length. Siphonozooids between two adjacent autozooids often about five in number in colonies >70 mm, and often up to 1,0 mm in height. Polyps numerous and completely covering polyparium, evenly distributed. Anthocodial sclerites apparently absent. Oral surface of tentacles covered with several rows of pinnules, appearing clustered in contracted specimens. Surface of colony densely spiculated. Interior coenenchyme with very few irregularly-shaped rod-like sclerites and spindles, or internal sclerites totally absent. Sclerites of the polyparium are tuberculated clubs, 0,17–0,35 mm in length. Tubercles mostly large, prickly to rounded and almost smooth. Sclerites of stalk are also mainly clubs but are more pronounced with spheroid heads, 0,20–0,35 mm long, tubercles numerous. Colony colour in life light mauve-purple with flesh-coloured polyps and brownish stalk. In alcohol, colour fades to dull brownish.

### Distribution

Apparently endemic to South Africa; Cape St Francis and Algoa Bay to Port Durnford, Natal; depth range 30–146 m (Williams in press *a*). Type locality is Algoa Bay.

### Remarks

The genus *Minabea* Utinomi, 1957, is known from the western Pacific (Japan and the Australian Great Barrier Reef). Two species are described at present. Species of *Minabea* are also digitiform and dimorphic. The genus differs from *Acrophytum* by possessing surface sclerites of double heads or double stars and capstans, and interior sclerites of capstans and narrow spindles.



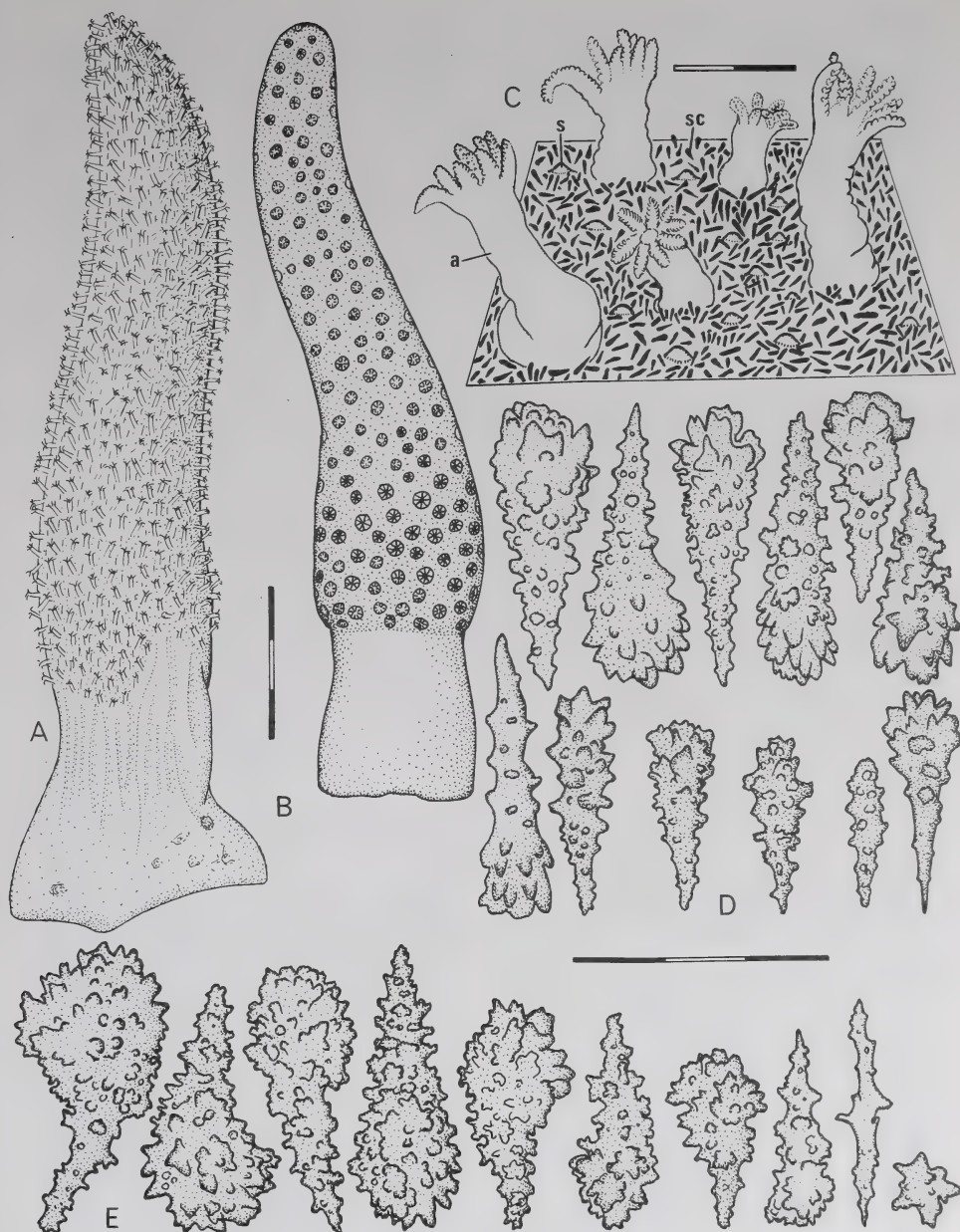


Fig. 7 *Acrophytum claviger* Hickson, 1900. A. Colony with exerted autozooids. B. Colony with retracted autozooids. A-B. Scale bar = 30 mm. C. Detail of polyparium surface showing autozooids, siphonozooids, and sclerites; scale bar = 2 mm. D. Sclerites from the polyparium. E. Sclerites from the stalk. D-E. Scale bar = 0.3 mm. Abbreviations: a—autozoid, s—siphonozooid, sc—sclerite.

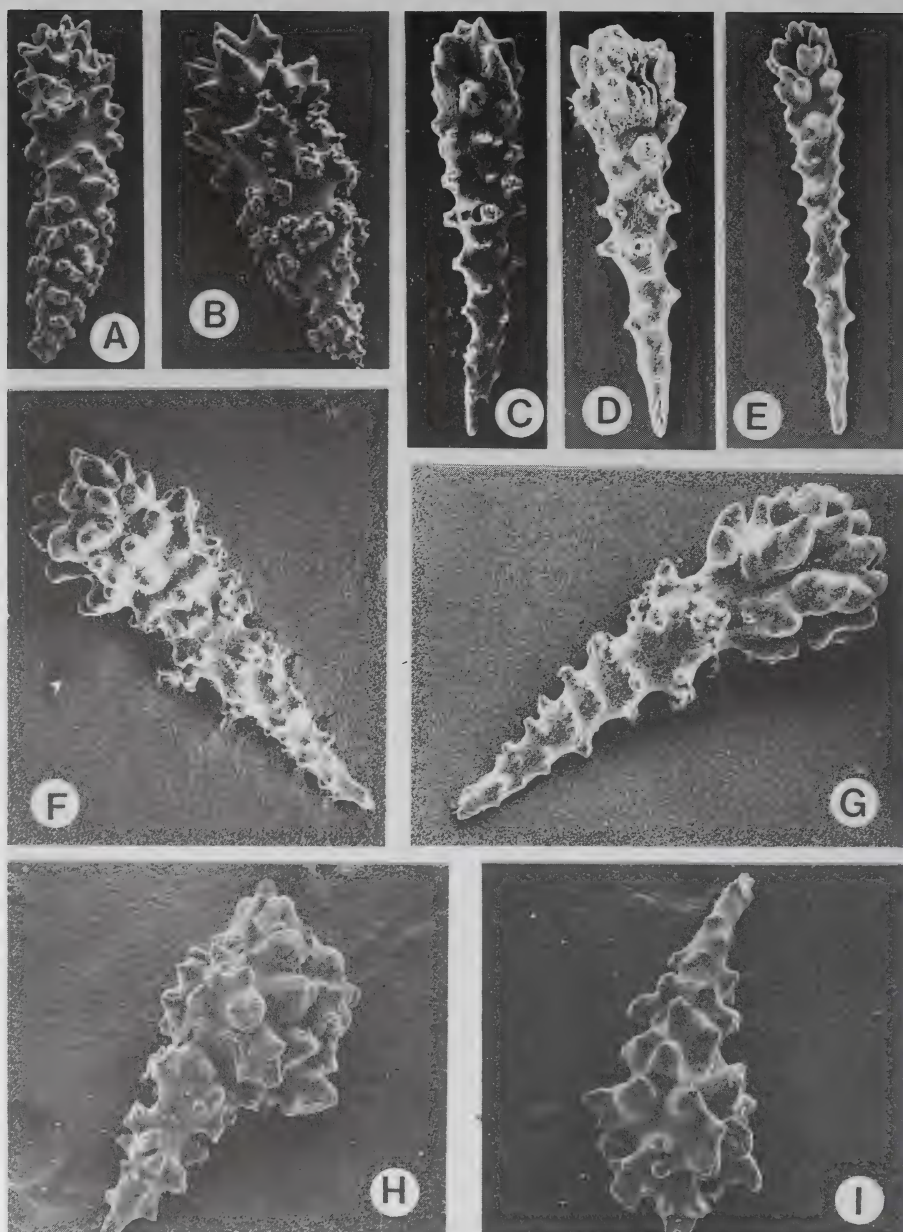


Fig. 8. Scanning electron micrographs of *Acrophytum claviger* Hickson, 1900. A-G. Clubs from the surface of the polyparium. A. 0,58 mm. B. 0,42 mm. C. 0,3 mm. D. 0,27 mm. E. 0,39 mm. F. 0,36 mm. G. 0,37 mm. H-I. Clubs from the surface of the stalk. H. 0,22 mm. I. 0,17 mm.



Dimorphism in smaller colonies of *Acrophytum claviger* is usually not apparent. It may be that siphonozooids are present only in large colonies, where greater facility of internal water circulation is needed, or that siphonozooids develop in large breeding colonies only. Colonies less than 70 mm in length that are apparently monomorphic are distinguished by the lack of non-retractile calyces, sclerites that are clubs (<0,35 mm long) densely distributed in the surface layer of the polyparium, and stalk and internal sclerites very sparse or altogether absent.

#### Genus *Alcyonium* Linnaeus, 1758

*Alcyonium* Linnaeus, 1758: 803. Tixier-Durivault, 1966: 28. Manuel, 1981: 40.

*Parerythropodium* Kükenthal, 1916: 461. Tixier-Durivault, 1966: 101. Manuel, 1981: 44.

#### Diagnosis

Colonial growth form highly variable: colony may be upright, with a definite basal stalk, and with a multi-lobed, digitate, capitate, digitiform, or disc-shaped polyparium; or colony prostrate, without a definite stalk, with a membranous to encrusting or globular polyparium. Polyps monomorphic. Sclerites are often tuberculate spindles; capstans, rods, clubs, and needles also common.

A cosmopolitan genus of many species.

*Type species.* *Alcyonium digitatum* Linnaeus, 1758.

#### *Alcyonium distinctum* Williams, 1988

Figs 9–10

*Alcyonium distinctum* Williams, 1988: 2–7, figs 1–4.

#### Material

SAM-H3910, off Cape St Francis, Cape Province (34°16'S 24°50'E), 35 m, 15 January 1986, one whole colony, SCUBA, coll. W. R. Liltved. SAM-H3909 (paratype), same data as SAM-3910. SAM-H3911, off Cape Agulhas, Cape Province (34°52'S 20°05'E), 54 m, 23 February 1985, single colony cut longitudinally into two halves, SCUBA, coll. W. R. Liltved (Sea Fisheries Research Institute, Line Fish Survey).

#### Description

Colonies examined measure 30–50 mm in height and 30–60 mm in diameter. Colonial growth form is lobate. Stalk short and thick (10–15 mm in height and 30–40 mm in diameter). Polyparium with 2–5 main branches that further ramify distally to produce rounded, swollen or spheroid terminal lobes (5–12 mm long). Polyps concentrated on lobes, sparse on surfaces of branches. Polyps usually preserved exerted (1–2 mm in length), but capable of total retraction into polyparium. Calyces absent. Sclerites restricted to the surface region of the stalk, absent from all other parts of colony. Sclerites are

tuberculate spheroids, some approaching barrels or eight-radiates, 0,08–0,15 mm in length. Colony colour vivid purple in life, fading to cream or brownish-white in alcohol.

### *Distribution*

The species is known only from the south coast of South Africa—Cape Agulhas and Cape St Francis, 35–54 m in depth (Williams 1988; in press *a*); apparently endemic to southern Africa. Type locality is Cape St Francis.

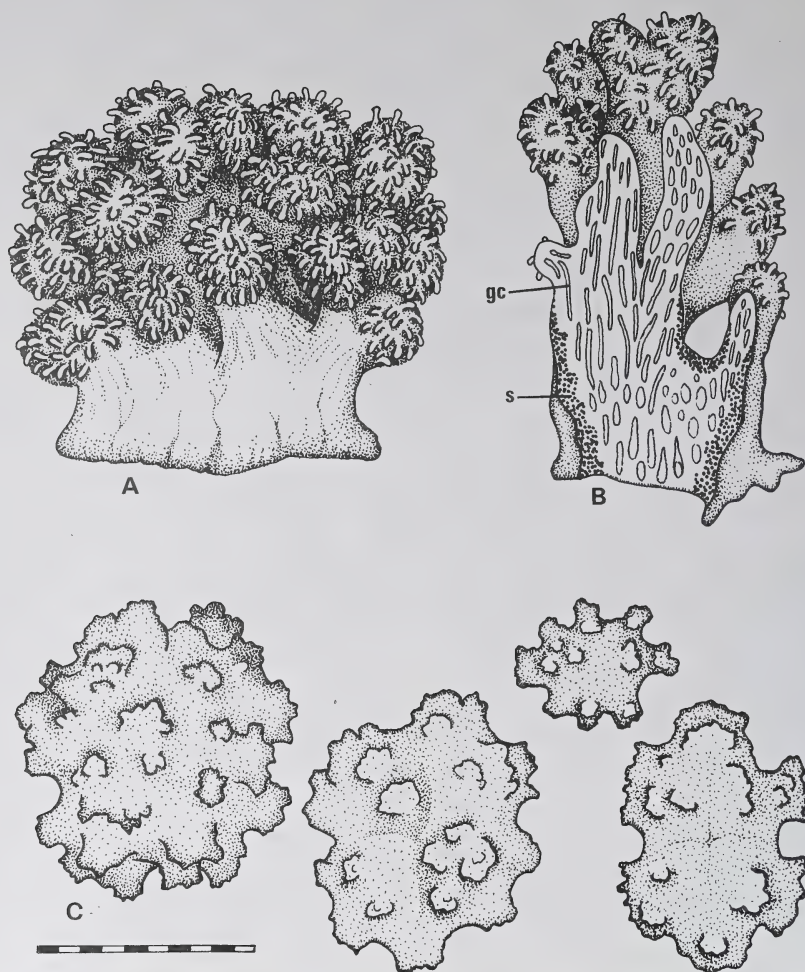


Fig. 9. *Alcyonium distinctum* Williams, 1988. A. An entire colony, 46 mm in height. B. Paratype specimen cut longitudinally to reveal internal structure; height of specimen 52 mm. C. Four sclerites from the surface of the stalk; scale bar = 0,1 mm.

Abbreviations: gc—gastric cavity, s—sclerites.

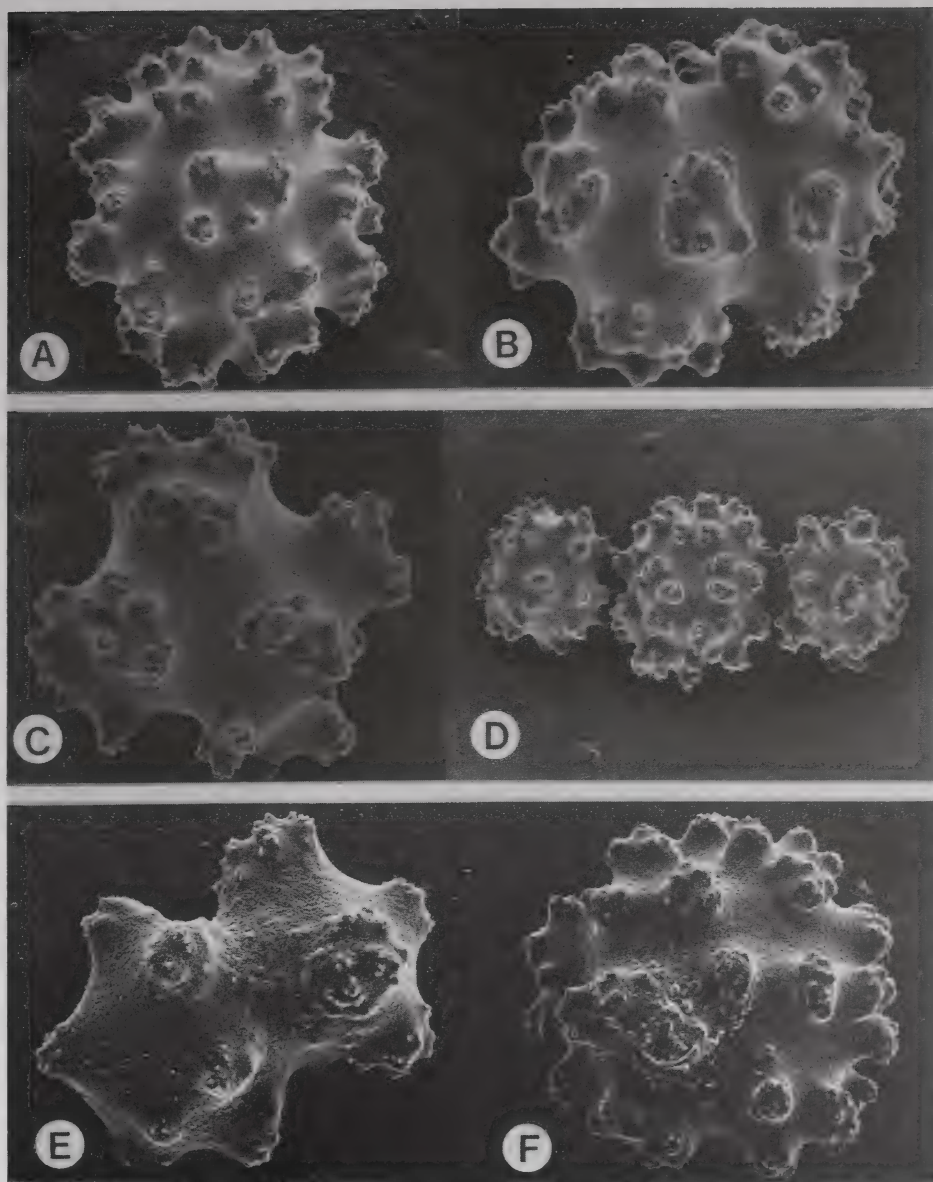


Fig. 10. Scanning electron micrographs of *Alcyonium distinctum* Williams, 1988. Sclerites from the surface of the stalk. A. 0,13 mm. B. 0,13 mm. C. 0,10 mm. D. 0,10 mm, 0,14 mm and 0,11 mm. E. 0,09 mm. F. 0,14 mm.



### Remarks

This species is distinguished from other southern African *Alcyonium* species by the possession of lobate growth form and the restriction of sclerites to the surface region of the stalk.

*Alcyonium elegans* (Kükenthal, 1902) comb. nov.

Figs 11–12

*Anthomastus elegans* Kükenthal, 1902: 301; 1906: 64, pl. 2 (figs 6–7), pl. 11 (figs 63–66); 1910: 8. Thomson, 1921: 169; 1923: 48, 70. Jungersen, 1927: 13.

### Material

SAM-H3802, Shixini Point, Transkei (32°31,2'S 28°52,2'E), 300 m, 11 July 1984, several colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM-H3803, Mendu Point, Transkei (32°21,8'S 29°00,0'E), 300 m, 12 July 1984, 3 colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM-H3804, Stony Point, Transkei (32°38,9'S 28°45,0'E), 360 m, 12 July 1984, several colonies, dredge coll. G. C. Williams (R.V. *Meiring Naude*). SAM-H3805, Qolora River, Transkei (32°47,2'S 28°36,2'E), 290–300 m, 14 July 1984, several colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

### Description

Colonies examined range in length from 4 mm to 18 mm. Colonies are attached to pieces of coral rubble, small stones, or shell fragments by flattened lobate extensions of the proximal region of the stalk, forming an often elaborate holdfast. Stalk broad and often compressed, giving rise to the distal polyparium. Polyps restricted to distal terminus of colony. Polyps large, conspicuous, up to 6 mm in length and usually numbering <12 per colony. Calyces absent. Polyps capable of total retraction into polyparium. Polyps heavily impregnated with finely tuberculated sclerites. Anthocodiae with crown and points of slender spindles or needles <0,30 mm long. Shorter rod-like sclerites are also present. These are often curved with ends drawn out to needle-like points. Sclerites of polyparium and stalk are capstans and some double stars, usually <0,11 mm long. Gastric cavity walls impregnated with stout capstan-like spindles and also slender spindles approximately 0,10 mm in length. Stalk white or rose, polyps rose to deep red; colour due to permanent pigmentation of sclerites.

### Distribution

Apparently endemic to southern Africa—Agulhas Bank, Transkei and southern Natal, depth 126–360 m (Williams in press *a*). Type locality is the region of the Agulhas Bank, south-east of Cape Agulhas.

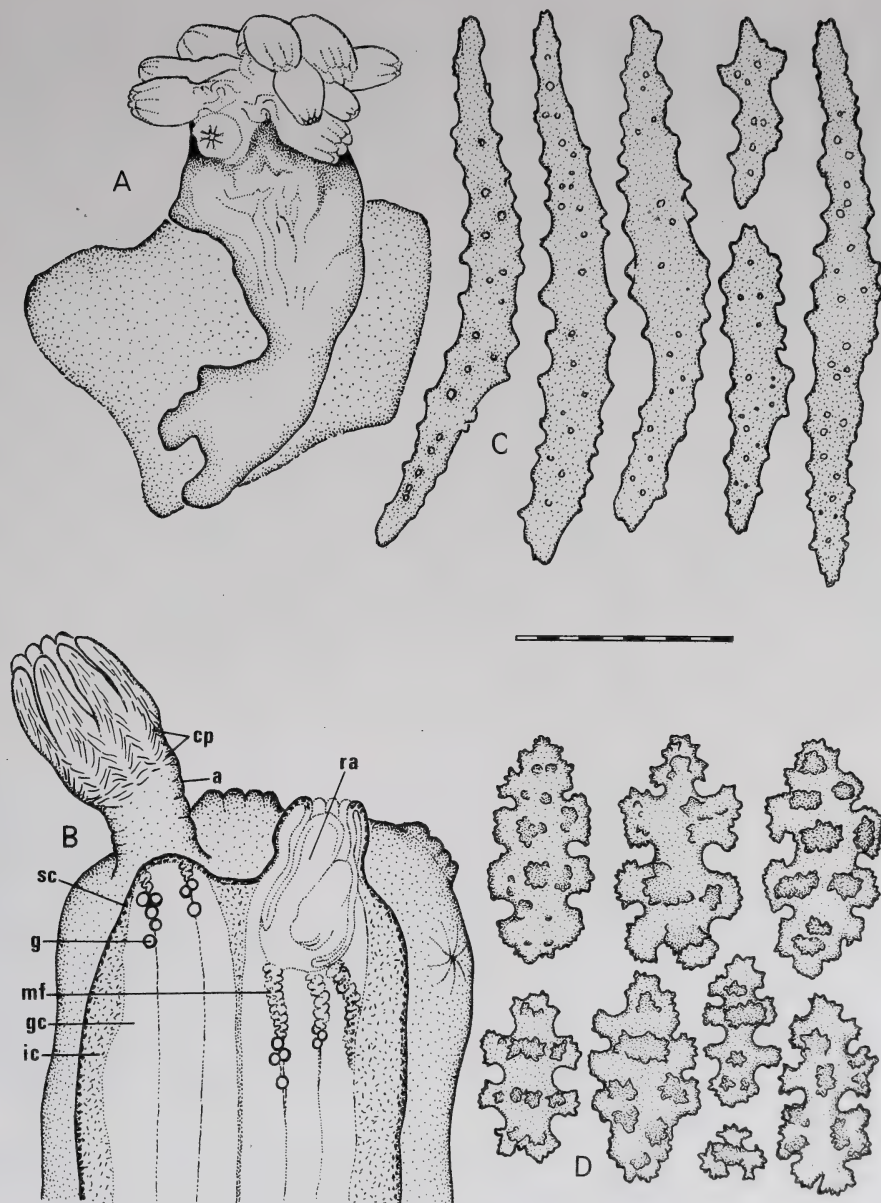
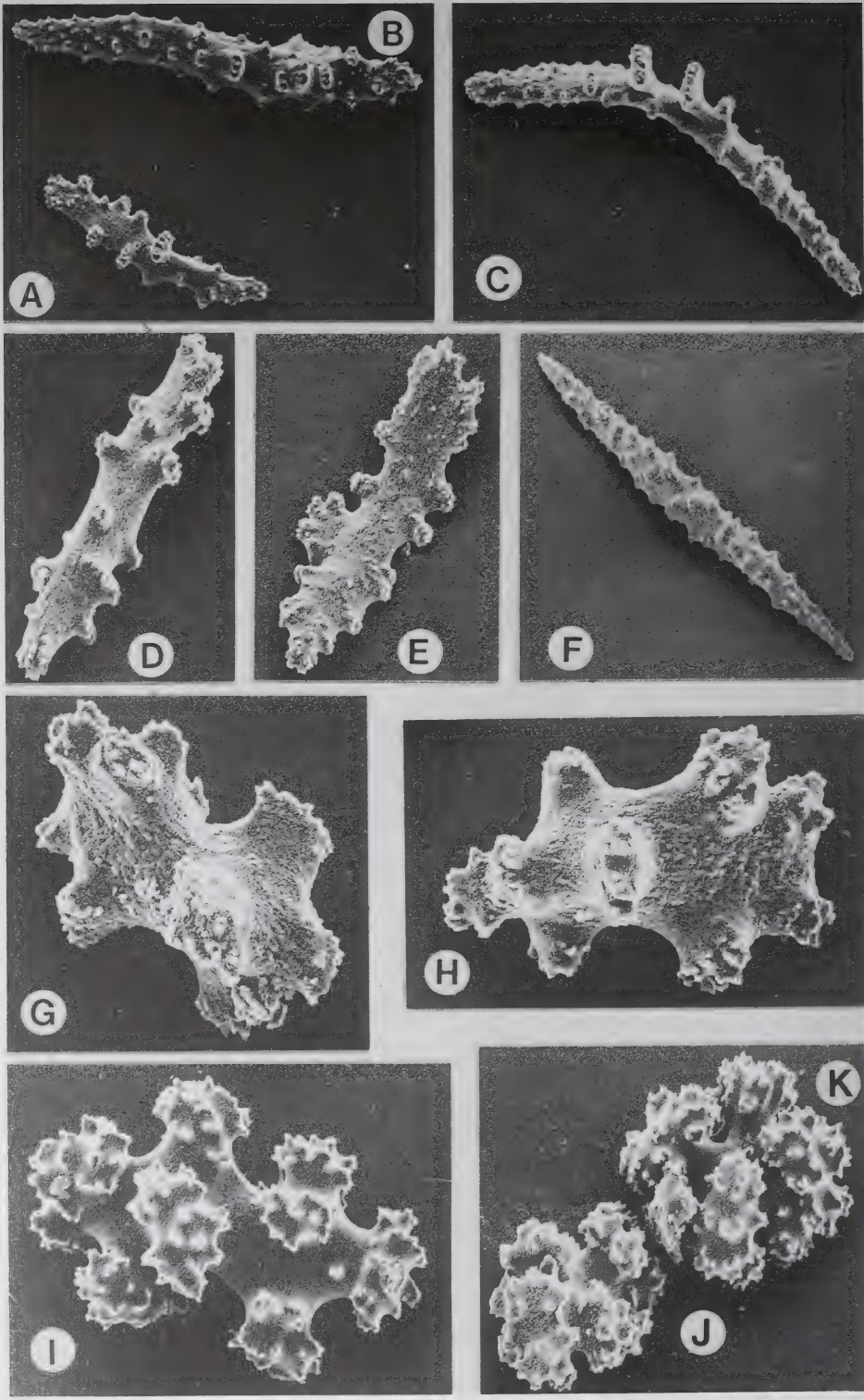


Fig. 11. *Alcyonium elegans* (Kükenthal, 1902). A. Colony growing on a stone; total height of figure 15,5 mm. B. Polyp-bearing distal region of a colony cut longitudinally to reveal internal structure; total height of figure = 6,2 mm. C. Sclerites from crown and points of anthocodia. D. Stalk sclerites. C-D. Scale bar = 0,1 mm. Abbreviations: a—anthocodia, c—crown, g—gonad, gc—gastric cavity, ic—interior coenenchyme, mf—mesenterial filament, p—points, ra—retracted anthocodia, sc—surface coenenchyme.





### Remarks

Kükenthal (1902) originally described this species in the genus *Anthomastus* in spite of the fact that he did not detect the presence of siphonozooids, believing his material to be young colonies. *Anthomastus* is characterized by having dimorphic polyps and capitate colony shape with capitulum sharply delimited from stalk. The present species is neither markedly capitate nor dimorphic. Jungersen (1927: 13) first pointed out that this species was wrongly placed in the genus *Anthomastus* since siphonozooids are absent and because the body shape differed significantly from other members of the genus. He also pointed out that in very young colonies of *Anthomastus grandiflorus*, distinct siphonozooids are evident. Jungersen therefore suggested that Kükenthal's species be excluded from *Anthomastus* but did not propose an alternative. I have examined several whole specimens and sectioned colonies and have found no indication of siphonozooids either externally or internally. I therefore believe them to be monomorphic. At least two members of the genus *Alcyonium* possess polyps restricted to the distal terminal regions of unilobate, unbranched colonies: *A. complanatum* Verseveldt, 1977, and *A. planiceps* Williams, 1986a. The nature of the sclerites (capstans in the coenenchyme and needles in the polyps) are similar in shape and distribution to those of other *Alcyonium* species such as *A. variabile* (Thomson, 1921). I therefore believe that the present species can be accommodated in the morphologically diverse genus *Alcyonium*.

Superficially *A. elegans* most closely resembles *A. clavatum* Studer, 1901, which was originally described from 318 m depth off the Azores. However, the latter apparently lacks sclerites of eight-radiates (capstans) in the stalk, which are common in *A. elegans*.

*Alcyonium elegans* differs from other southern African *Alcyonium* species by the restriction of polyps to the distal terminus of the colony, anthocodial sclerites that are mostly spindles, and stalk sclerites that are mostly capstans.

### *Alcyonium fauri* Thomson, 1910 *sensu lato*

Figs 1B, I, 13–15

non *Alcyonium purpureum* Lamarck, 1836: 608.

*Alcyonium purpureum* (non Lamarck, 1836: 608) Hickson, 1904: 215, pl. 7 (fig. 1), pl. 9 (fig. 18). Thomson, 1921: 156; 1923: 47, 68. Day *et al.*, 1970: 15.

*Alcyonium fauri* Thomson, 1910: 568, pl. 1 (fig. 5), pl. 3 (figs 16, 24, 25), pl. 4 (fig. 44); 1923: 47, 68. Lüttschwager, 1922: 535. Broch, 1939: 8.

*Alcyonium fallax* Lüttschwager, 1922: 534 (nom. nov).

*Parerythropodium purpureum*: Day, 1974: 34, fig. p. 34. Branch & Branch, 1981: 152, pls 34, 37.

*Parerythropodium wilsoni* (non Thomson, 1921: 160): Day, 1974: 34.

*Parerythropodium wilsoni* (non Thomson, 1921: 160): Branch & Branch, 1981: 152.

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Fig. 12. (*see opposite*.) Scanning electron micrographs of *Alcyonium elegans* (Kükenthal, 1902). A–F. Anthocodial sclerites. A. 0.14 mm. B. 0.215 mm. C. 0.27 mm. D. 0.09 mm. E. 0.135 mm. F. 0.31 mm. G–J. Sclerites from the surface of the stalk. G. 0.06 mm. H. 0.065 mm. I. 0.09 mm. J. 0.05 mm.

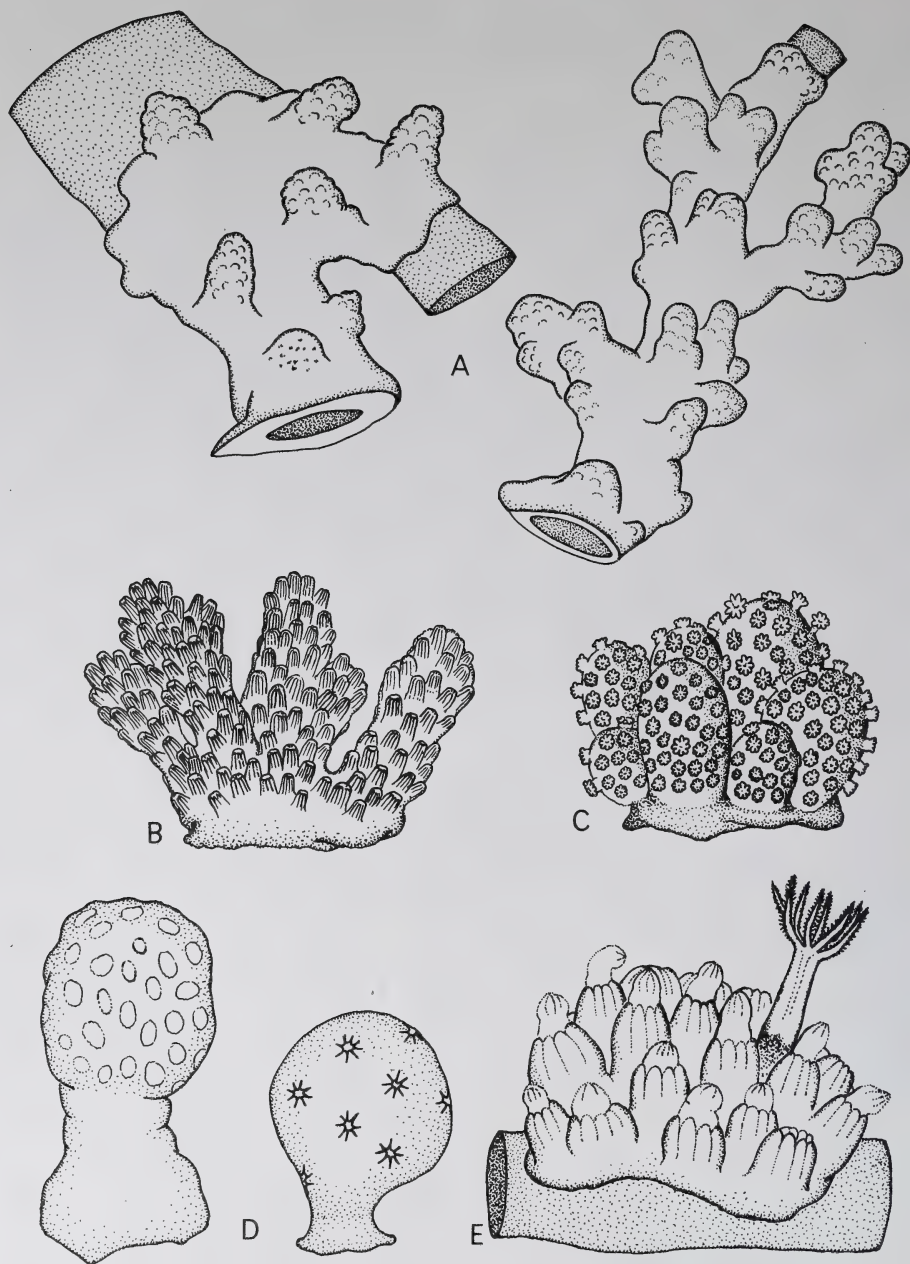


Fig. 13. *Alcyonium fauri* Thomson, 1910. A. Two membranous colonies growing on axes of dead gorgonians; longest linear dimensions of figures 48 mm (left) and 75 mm (right). B. Digitate colony, 52 mm in height. C. Lobate colony, 33 mm in height. D. Two capitate colonies, 12 mm in height (left) and 4 mm in height (right). E. Globular colony, 11 mm in height.

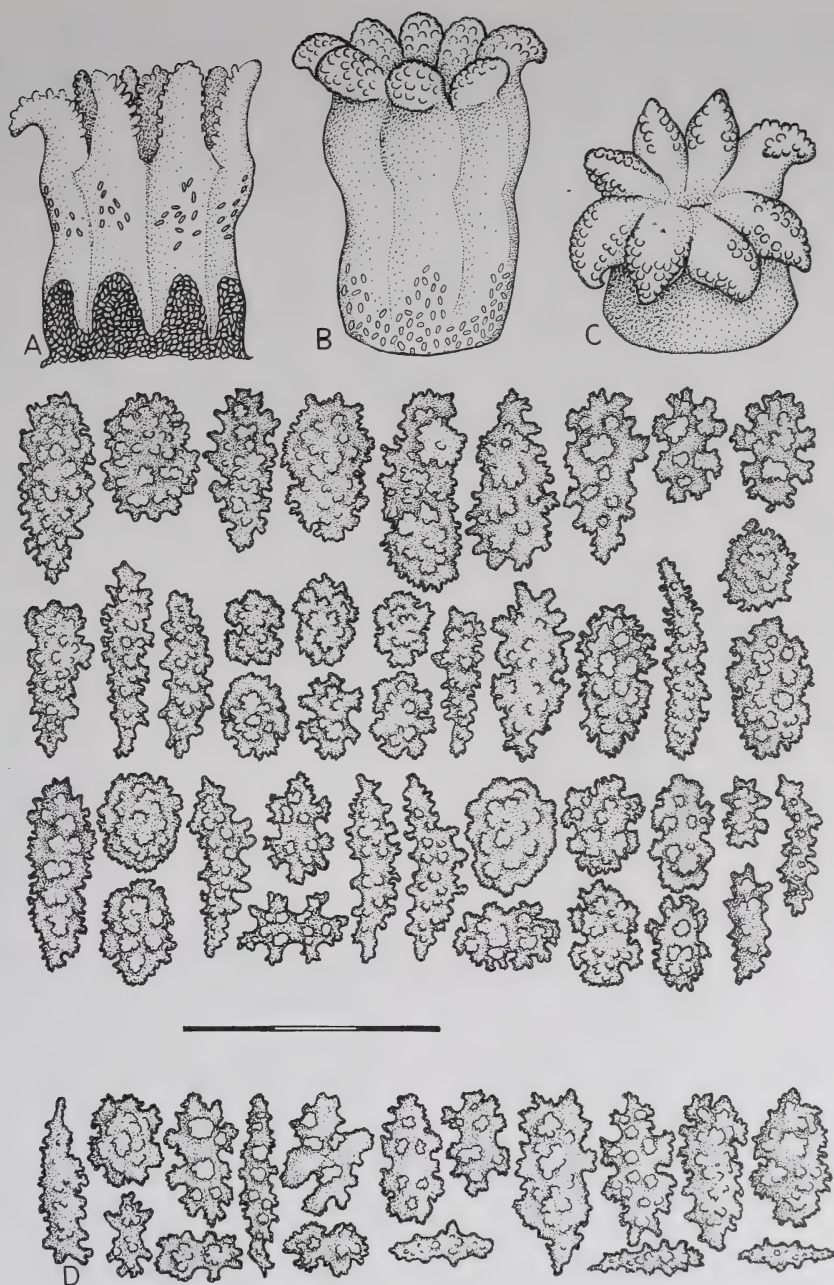


Fig. 14. *Alcyonium fauri* Thomson, 1910. A-C. Variation in sclerite content of anthocodiae from three different colonies; all anthocodiae 2 mm in length. A. Sclerites dense. B. Sclerites sparse. C. Sclerites absent. D. Coenenchymal sclerites; scale bar = 0,3 mm.



### Material

SAM-H3712, Algoa Bay near Port Elizabeth (33°50'S 25°41'E), 15–16 m, 16 August 1980, large colony encrusting dead gorgonian axis, trawl, coll. W. R. Liltved (R.V. *T.B. Davie*). SAM-H3328, Algoa Bay (33°0'S 25°40'E), 11 m, 20 May 1984, 3 colony fragments encrusting hard objects, SCUBA, coll. G. C. Williams. SAM-H3330, Algoa Bay (33°50'S 25°40'E), 11 m, 15 May 1984, several fragments, SCUBA, coll. G. C. Williams. SAM-H3168, Hottentots Huisie, Cape Peninsula (33°59'S 18°21'E), 13–16 m, 18 August 1983, one large colony, SCUBA, coll. G. C. Williams. SAM-H3772, Malgas Island (33°03'S 17°56'E), intertidal rock pools, 26–29 September 1983, one small colony, coll. S. L. Burke. SAM-H3773, Buffels Bay, False Bay (34°19'S 18°28'E), 6–10 m, 17–18 March 1984, several colonies on dead gorgonian axis, SCUBA, coll. G. C. Williams. SAM-H3774, Sunny Cove, False Bay (34°09'S 18°27'E), 7 m, 17 February 1985, 2 colonies, SCUBA, coll. G. C. Williams.

### Description

Growth form highly variable; colonies may be membranous, globular to capitate, or lobate; often asymmetrical. Entire colony often covered with polyps. Sometimes there is a clear demarcation between base and polyparium, distinct stalk rarely well defined. Polyps generally <8 mm in length, completely retractile into coenenchyme. Sclerites numerous and dense in surface coenenchyme, sparse to dense in between gastric cavities of the interior. Sclerite distribution in polyps highly variable. In some colonies polyp sclerites are very scarce or totally absent. Other colonies have polyps with dense sclerites in the proximal region forming eight contiguous longitudinal bands resembling a calyx. Amount of sclerites in the anthocodiae also varies greatly: some may be devoid of sclerites, whereas others may contain numerous sclerites of the neck zone and bases of tentacles, forming eight points. Sclerites are tuberculated to thorny spindles and capstans with varying numbers of globular or ovoid spheroids and radiates. Some spindles may be distinctly clubbed. Most sclerites do not exceed 0.25 mm in length. Colony colour extremely variable; often vivid purple, but can be pink, white, golden yellow, orange, or dark smoke-grey to dark brown. Sclerites are white or somewhat translucent. Some colonies may be mottled with two colours such as purple and white. The purple pigment is alcohol-soluble and varies from magenta or red-purple to blue-purple.

### Distribution

Endemic to southern Africa; known from Saldanha Bay on the west coast, to Richard's Bay in Natal; littoral to 90 m in depth (Williams in press *a*). This is one of the most common and conspicuous octocorals of the rocky intertidal and shallow sublittoral of southern Africa. Type locality Cape St Blaize near Mossel Bay.

### Remarks

Hickson (1904) erroneously determined *Alcyonium purpureum* from Mossel Bay, South Africa. Thomson (1910) described *A. fauri* from Cape St Blaize,

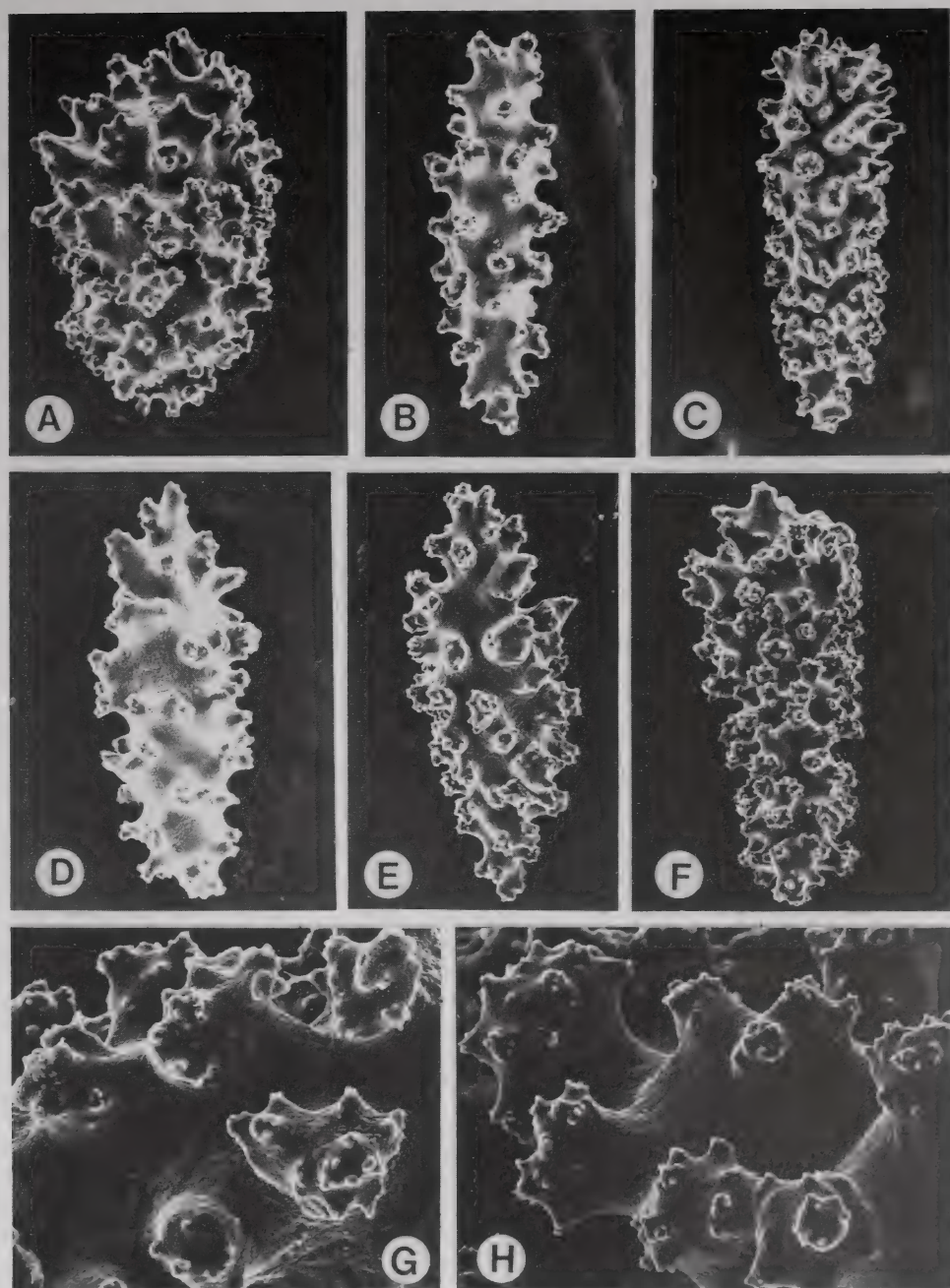


Fig. 15. Scanning electron micrographs of *Alcyonium fauri* Thomson, 1910; coenenchymal sclerites. A. 0.17 mm. B. 0.18 mm. C. 0.28 mm. D. 0.175 mm. E. 0.21 mm. F. 0.24 mm. G. Detail of surface tuberculation from a single sclerite; total length of micrograph = 0.052 mm. H. Detail of surface tuberculation from sclerite shown in F; total length of micrograph = 0.054 mm.

South Africa. However, Lüttschwager (1922), not recognizing that Thomson's and Hickson's material were conspecific, applied the new name, *A. fallax*, since *A. purpureum* was found to be used previously by Lamarck (1836) for a species from Australia. Broch (1939: 8) observed many intergrading features and considered *A. purpureum* of Hickson and *A. fauri* to be conspecific, thus eliminating the need for the name *A. fallax*. I agree with Broch and consider *A. purpureum* of Hickson and *A. fallax* as synonyms of *A. fauri*. The genus *Parerythropodium* was described by Kükenthal (1916) for membranous or encrusting forms. Day (1974) and Branch & Branch (1981) used the name *P. purpureum* for the South African species. Groot & Weinberg (1982) showed the type species of the genus *Parerythropodium* to be inseparable from *Alcyonium*, therefore the former must be considered congeneric with the latter. *Alcyonium fauri* is perhaps the most highly variable soft coral species in southern Africa. Groot & Weinberg (1982) described the extreme degree of variability found in *Alcyonium coralloides* from Europe. Like *A. coralloides*, *A. fauri* is highly variable not only in regard to colour but also in colonial growth form, size, and sclerite distribution. *Alcyonium foliatum* Thomson, 1921, and *A. wilsoni* Thomson, 1921, are superficially similar species (see remarks for *A. wilsoni*).

Membranous colonies may grow on a variety of hard or soft substrata—the axes of dead gorgonians, rocks, coral rubble, worm tubes, sponges, or algal stipes and holdfasts are common. Lobate colonies may be erect and upright or with lobes lying prostrate adjacent to substratum. Globular or capitate colonies may be attached to the surfaces of a variety of hard or firm objects. In February 1984, off Cape Agulhas at 26–36 m depth, SCUBA divers observed the purple membranous form of *Alcyonium fauri* growing upon the bared axis of living gorgoniids, *Eunicella tricornata* Velimirov, 1971. Hughes (1983: 46), in referring to corals of tropical reef regions, stated that colony death can result if naked areas of coral axis are colonized by fouling organisms. In this case, *A. fauri* appears to act as a fouling organism. Some living colonies of *E. tricornata* were observed to be almost entirely covered by purple, encrusting to lobate growths of *A. fauri* (W. R. Liltved and A. Penny pers. comm.).

*Alcyonium fauri* is distinguished from other southern African *Alcyonium* species by the possession of robust, ovoid to subspheroid spindles with coarse tuberculation. Some of the spindles may be slightly clubbed.

#### *Alcyonium foliatum* Thomson, 1921

Figs 16, 17A–E

*Alcyonium (Erythropodium) foliatum* Thomson, 1921: 158, fig. 2; 1923: 47, 50, 69.

#### Material

SAM-H561 (holotype), off Cape Morgan, border of Cape Province and Transkei (32°45'S 28°20'E), 82 m, 13 August 1901, 1 colony on sponge, dredge,



coll. S.S. *Pieter Faure* survey, PF 13364. SAM-H3690, off Gonubie, eastern Cape Province (33°04,7'S 28°07,2'E), 90 m, 17 July 1984, 3 colonies on separate sponges, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM-H840, off Umtwalumi River mouth, Natal (30°30'S 30°40'E), 91 m, 11 March 1901, 12 colonies on sponges, dredge, coll. S.S. *Pieter Faure* survey, PF 12282.

### Description

Colonies membranous on external surface of an unidentified species of clavate sponge. Base of colony often thin (<0,3 mm), and sheet-like.

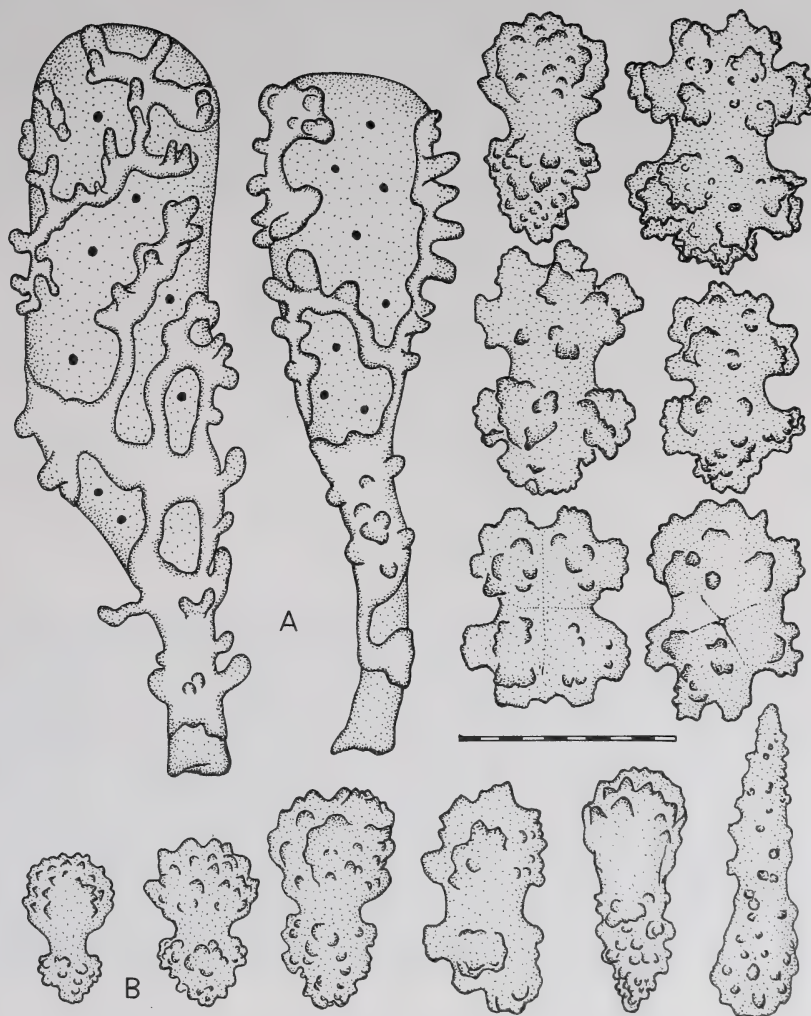


Fig. 16. *Alcyonium foliatum* Thomson, 1921. A. Colonies growing on two clavate sponges; length of figures = 75 mm (left) and 67 mm (right). B. Coenenchymal sclerites; scale bar = 0,1 mm.

Aggregations of polyps form globular or somewhat digitate polyparies up to 5 mm in height and diameter. Some individual polyps arise directly from the membranous base. Retracted polyps <1,0 mm in diameter. Membranous base may form stolon-like bands joining polyparies, or base may form a continuous sheet with swollen aggregations of polyps forming polyparies. Coenenchyme sclerites of the membranous bases and polyparies are predominantly leaf clubs and double heads, 0,07–0,12 mm long. Anthocodiae with crown and points of slender tuberculated spindles, 0,06–0,12 mm in length. Colour of colonies in life: polyparies vivid pinkish-magenta, with membranous bases white to pinkish. Colour fades to cream or brownish-white when preserved. Pigments are alcohol soluble.

### *Distribution*

Known only from the above material—the border region between Cape Province and Transkei to the Natal south coast; 82–91 m in depth. Apparently endemic to southern Africa. Type locality is Cape Morgan, border of Cape Province and Transkei.

### *Remarks*

The host sponges are clavate, upright, unbranched, 45–100 mm in length, with a smooth external surface, and yellowish-grey to tan in colour. Spicules are styles and isochelas.

*Alcyonium foliatum* differs from other southern African members of the genus by the possession of many sclerites that are leaf clubs and double heads.

*Alcyonium moriferum* (Tixier-Durivault, 1954) comb. nov.

Figs 17F–H, 18

*Nidalia morifera* Tixier-Durivault, 1954: 128, figs 3, 4.

*Eleutherobia rotifera* (non Thomson, 1910): Verseveldt & Bayer, 1988: 36 (part.).

### *Material*

SAM–H1271, Umhloti River mouth, Natal (29°50'S 31°15'E), 73 m, 18 December 1900, large dredge, S.S. *Pieter Faure* survey, PF 10863. SAM–H1581, east of Durban (29°50'S 31°15'E), March 1963, dredge, coll. not known. SAM–H3826, Park Rynie, Natal (30°20'S 30°51'E), 96 m, 10 July 1984, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM–H3827, Umlaas River, Natal (30°01'S 31°03'E), 100 m, 10 July 1985, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

### *Description*

Colonies are digitiform, 3–22 mm in length. Stalk and polypary clearly differentiated, each of approximately equal length. Polyps relatively few and large: <25 per colony and calyces 1,5–2,0 mm in diameter. Polyps uniformly covering surface of polypary, completely retractile. During polyp retraction,

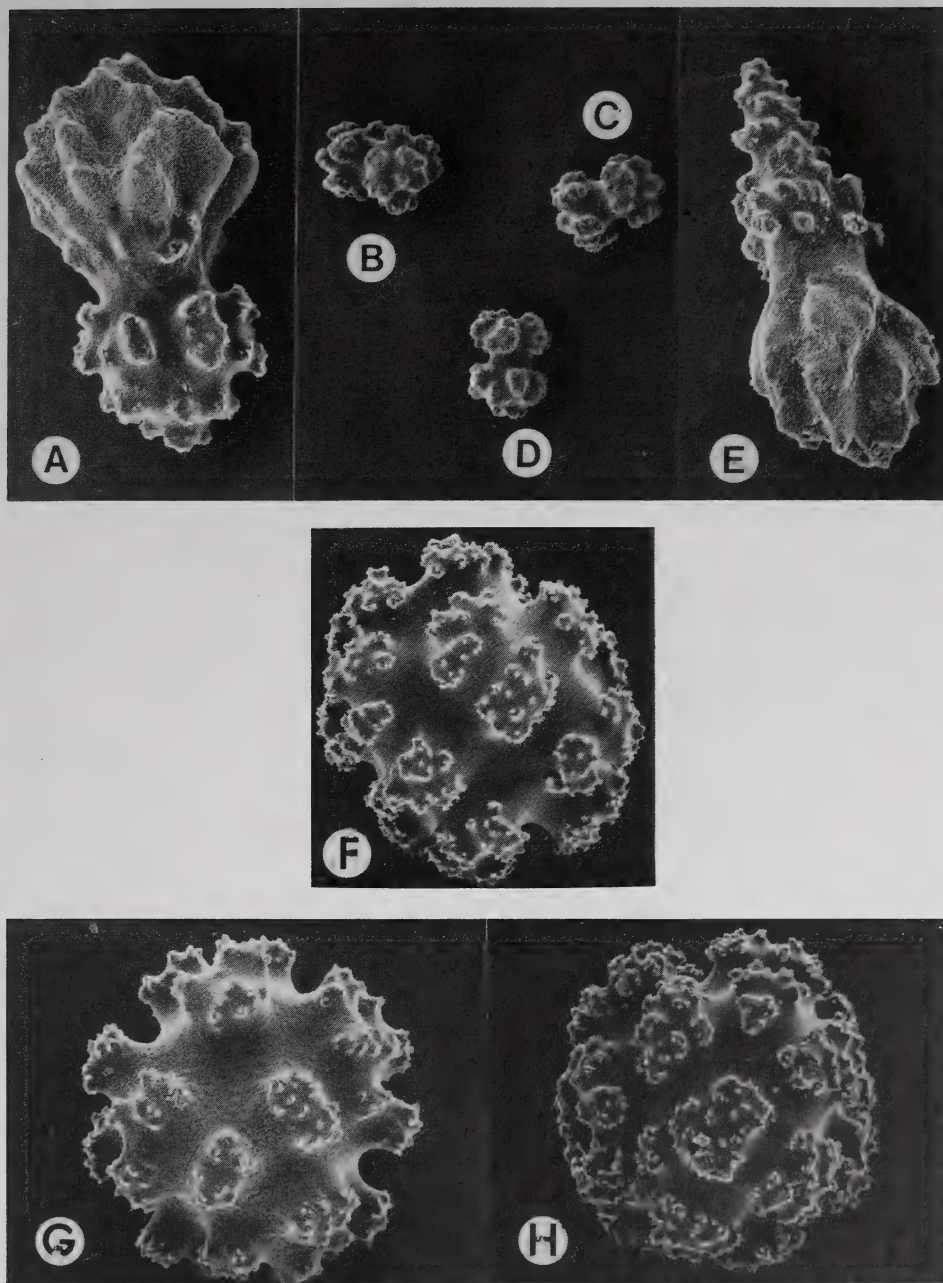


Fig. 17. Scanning electron micrographs. A-E. *Alcyonium foliatum* Thomson, 1921; coenenchymal sclerites. A. 0,1 mm. B-D. 0,75 mm. E. 0,12 mm. F-H. *Alcyonium moriferum* (Tixier-Durivault, 1954); sclerites from the surface of the polyparium. F. 0,09 mm. G. 0,07 mm. H. 0,09 mm.



calyces may form prominent rounded protuberances on the surface of the polypary, but these are also capable of total retraction into the polyparium, becoming flush with the external surface. Sclerites are dense and numerous in the surface of the polypary, stalk and calyces. Sclerites are present throughout the colony, dense on the surface, fewer and sparser in the interior. All sclerites are globular, tuberculate spheroids resembling the shape of fruits of the mulberry tree (genus *Morus*, family Moraceae), hence the specific epithet, *A. moriferum*; they are 0,04–0,09 mm in diameter. Colony colour is yellow or orange with yellow, orange, or red calyces.

### Distribution

Known only from Durban to Cape St Lucia along the Natal north coast, 27–100 m in depth (Tixier-Durivault 1954: 128; Williams in press *a*); commonly encountered in the Durban region; apparently endemic to the southern African east coast. The collected colonies are attached to pelecypod shells, dead coral fragments, and small stones. Type locality is off St Lucia, northern Natal.

### Remarks

Because the entire polyp including the calyx is capable of complete retraction into the polyparium, this species must be allocated to the genus *Alcyonium*, as *Nidalia* possesses firm, projecting calyces. It differs from other southern African *Alcyonium* species by digitiform growth habit, prominent stalk, and sclerites of tuberculate spheroids.

Verseveldt & Bayer (1988: 36) maintained that *Nidalia morifera* is synonymous with *Eleutherobia rotifera* (Thomson, 1910). However, the two species can be differentiated as follows. In the former, the colonies are digitiform, the polyps are capable of complete retraction into the polyparium without retaining permanent calyces, and the sclerites are predominantly tuberculate spheroids without medial waists. In the latter species, the colonies are digitate, the polyps retract into permanent calyces, and sclerites are mostly compact radiates with medial waists.

### *Alcyonium mutabiliforme* Williams, 1988

#### Figs 19, 20A–D

?*Metalcyonium molle* (non Burchardt, 1903: 31) Thomson, 1921: 162.

*Alcyonium mutabiliforme* Williams, 1988: 14–19, figs 11–14.

### Material

SAM–H3716, Hottentots Huisie, Cape Peninsula (33°59'S 18°21'E), 15–18 m, 11 November 1984, 4 whole colonies, SCUBA, coll. G. C. Williams.

### Description

Colonies upright, unbranched, up to 40 mm in length; digitiform when expanded, capitate when contracted. Polyp-bearing distal portion arising from

prominent stalk. Stalk approximately one-half length of expanded colony. Polyparium and stalk distinctly delimited. Stalk covered with a thin cuticle. Polyps monomorphic, capable of retraction into polyparium. Calyces absent. Sclerites few; thin, flattened rods with little surface ornamentation; 0,06–0,26 mm long; restricted to neck region of polyps and portion of polyparium



Fig. 18. *Alcyonium moriferum* (Tixier-Durivault, 1954). A. Entire colony with anthocodiae retracted into basal portions of polyps; total colony length 15 mm. B. Entire colony with polyps completely retracted into polyparium; total length of colony 20 mm. C. Coenenchymal sclerites; scale bar = 0,1 mm.

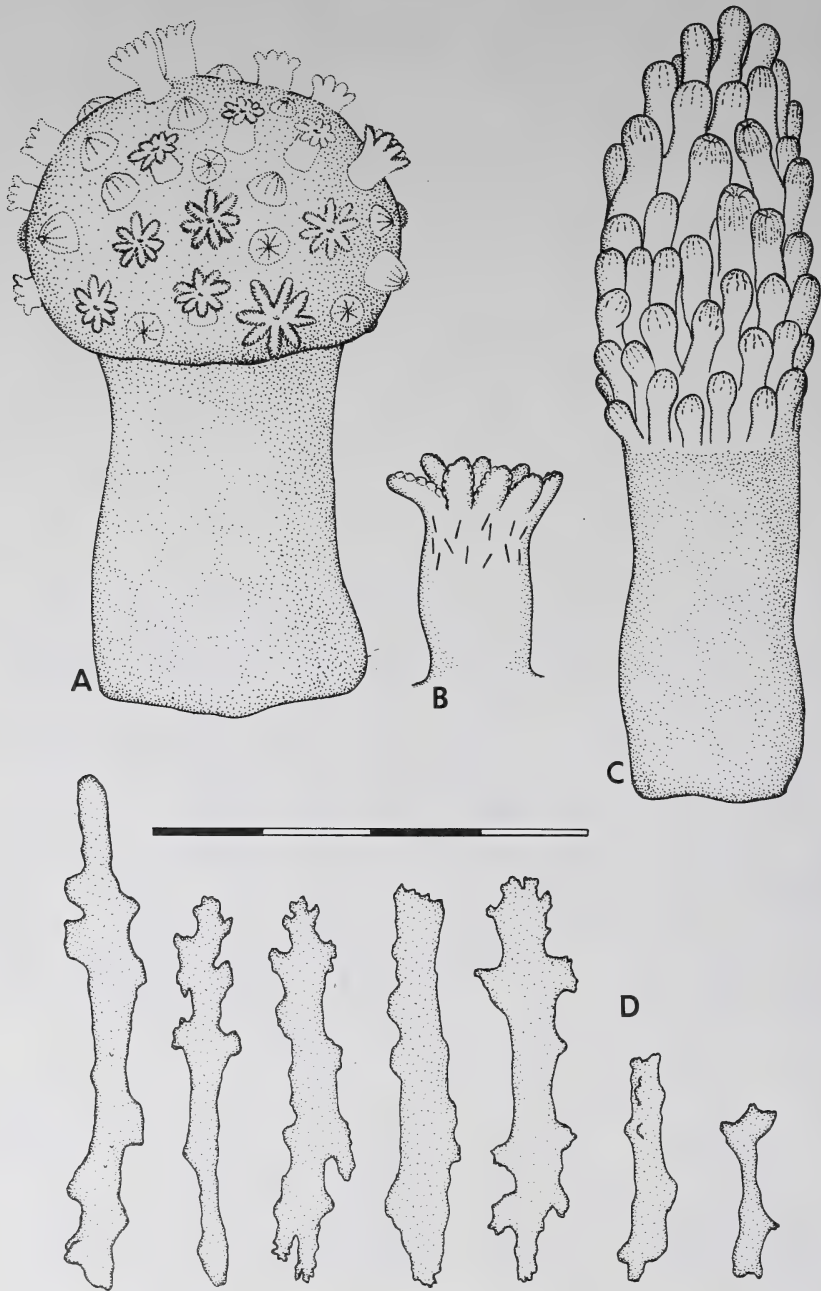


Fig. 19. *Alcyonium mutabiliforme* Williams, 1988. A. Entire colony, contracted, preserved, 12 mm in height. B. Single polyp showing placement of sclerites, length of polyp 1.5 mm. C. Entire colony, expanded in life, 25 mm in height. D. Polyp sclerites; scale bar = 0.2 mm.



surrounding polyps; usually sparsely scattered. Colour of colonies rust-orange in life, reddish-brown in alcohol.

#### *Distribution*

Presently known only from the Atlantic coast of the Cape of Good Hope Peninsula, 15–21 m depth (Williams 1988, in press a).

#### *Remarks*

See Williams (1988) for a discussion of material identified by Thomson (1921) as *Metalcyonium molle* Burchardt, 1903.

*Alcyonium mutabiliforme* differs from other southern African species in the genus by having only a few thin rod-like sclerites restricted to the regions of the anthocodiae.

*Alcyonium planiceps* Williams, 1986a

Figs 1F, 20E–J, 21

*Alcyonium planiceps* Williams, 1986a: 53–63, figs 1–7.

#### *Material*

SAM–H3280, off Llandudno, Atlantic side of Cape Peninsula (34°01'S 18°20'E), 21 m, 24 January 1984, 4 colonies, SCUBA, coll. G. C. Williams. SAM–H3713, off East London, eastern Cape Province (33°06,8'S 28°04,9'E), 90 m, 17 July 1984, 2 colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

#### *Description*

Colonies examined range in length from 12 to 30 mm. Colonies clavate to subcapitate, upright and unbranched. Stalk prominent, expanding distally and giving rise to a more-or-less flattened, disc-like polyparium. Polyps completely retractile, and restricted to this terminal disc; <10 mm in length preserved, <20 in number. Calyces absent. Sclerites dense and usually confined to outer coenenchyme of stalk and sides of capitulum; a few may be scattered in surface of polyparium and in the interior coenenchyme at base of stalk. Sclerites are large robust spindles (1,0–2,5 mm in length), finely to coarsely tuberculated. Sclerites evident through transparent cuticular epidermis of stalk. Stalk covered with a rough cuticular envelope upon which epizoic organisms and foreign particles may be attached. Colour in life: polyparium and bases of some polyps rose-purple, magenta, or vivid red-purple; polyps white to cream with bright golden-yellow tentacles; stalk brownish. Pigments are alcohol soluble; preserved colonies fade to greenish-grey or yellowish-brown.

#### *Distribution*

Presumably endemic to southern Africa; known only from the type locality on the Atlantic coast of the Cape of Good Hope Peninsula, off Cape St Francis.

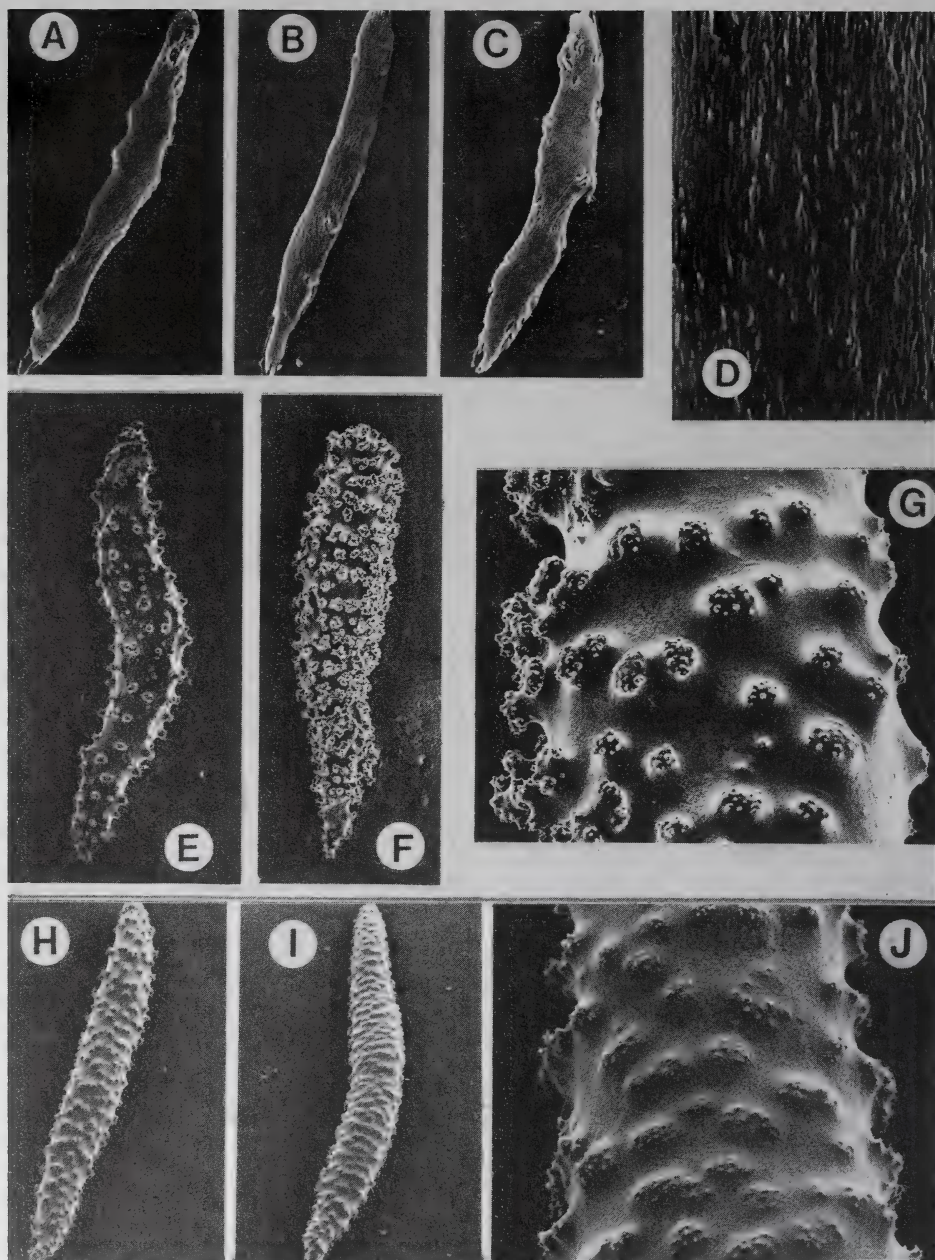


Fig. 20. Scanning electron micrographs. A-D. *Alcyonium mutabiliforme* Williams, 1988; polyp sclerites. A. 0,16 mm. B. 0,18 mm. C. 0,17 mm. D. Detail of surface from a polyp sclerite; total length of micrograph = 0,022 mm. E-J. *Alcyonium planiceps* Williams, 1986a; sclerites from surface of stalk. E. 1,1 mm. F. 1,0 mm. G. Detail from surface of a sclerite with thorny tubercles; total length of portion of sclerite shown = 0,185 mm. H. 1,3 mm. I. 1,7 mm. J. Detail from surface of a sclerite with simple tubercles; total length of portion of sclerite shown = 0,25 mm.

and off East London, in the eastern Cape Province; depth range 21–90 m (Williams in press a).

### Remarks

*Alcyonium planiceps* differs from other southern African members of the genus by the restriction of polyps to the flattened distal terminus of the colony and sclerites that are large robust spindles with varying tuberculations; anthocodial sclerites are absent.

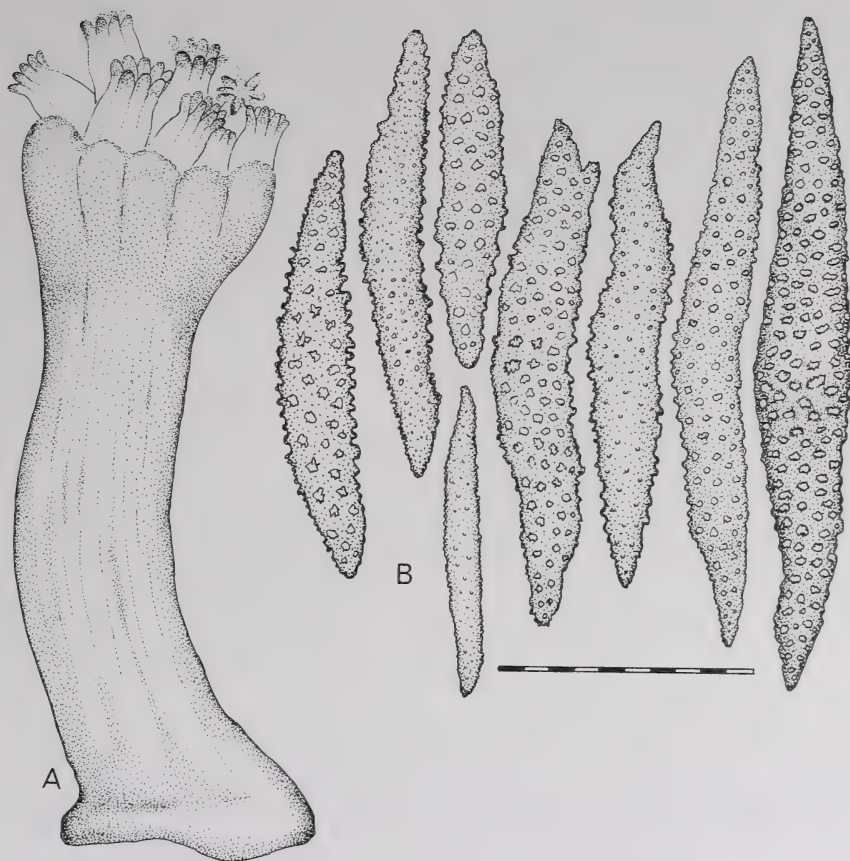


Fig. 21. *Alcyonium planiceps* Williams, 1986a. A. Entire colony, 30 mm length. B. Sclerites from surface of stalk; scale bar = 1.0 mm.



*Alcyonium valdiviae* Kükenthal, 1906

Figs 1E, 22–23

*Alcyonium valdiviae* Kükenthal, 1906: 42, pl. 3 (fig. 11), pl. 8 (figs 39–41). Verseveldt & Williams, 1988: 316, figs 1, 2A, C–D, 3.

*Alcyonium pachyclados* (non Klunzinger, 1877) Hickson, 1900: 72. Thomson, 1910: 570, pl. 2 (fig. 14), pl. 4 (figs 33, 34); 1921: 155–156, pl. 5 (figs 6–8); 1923: 48.

*Lobularia rutila* Tixier-Durivault, 1954: 261, figs 1–3.

*Material*

SAM–H3249 (holotype of *Lobularia rutila*), off Cape St Lucia, Natal (28°28'S 32°26'E), 27 m, 15 May 1948, 1 colony, dredge, coll. University of Cape Town Ecological Survey. SAM–H3732, Hottentots Huisie, Cape Peninsula (33°59'S 18°21'E), 14 m, 22 March 1984, 4 colonies, SCUBA, coll. G. C. Williams. SAM–H3822, Hottentots Huisie, Cape Peninsula (33°59'S 18°21'E), 23 m, 15 June 1983, 5 colonies, SCUBA, coll. W. R. Liltved. SAM–H3832, off Cape Agulhas (34°55'S 20°20'E), 54 m, 23 February 1985, 4 colonies, SCUBA, coll. W. R. Liltved (Sea Fisheries Research Institute, Line Fish Survey). SAM–H3349, off Port Elizabeth, Algoa Bay (33°50'S 25°40'E), 15 m, 14 May 1984, 4 colonies, SCUBA, coll. G. C. Williams. SAM–H4201, off Port Durnford (28°58,7'S 32°08,0'E), 52 m, 13 June 1988, 3 colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM–H4202, off Jesser Point (Zululand, northern Natal) (27°35,0'S 32°41,8'E), 70 m, 9 June 1987, 1 colony, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

*Description*

Colonies examined are 12–100 mm in diameter and 15–110 mm in height. Stalk conspicuous, relatively thick, variable in length. Tightly contracted colonies with terminal lobes globular or conical, 4–5 mm in length. Expanded colonies with terminal lobes finger-like, 2–4 mm in diameter and up to 15 mm in length. Terminal lobes numerous, arising from several branches that diverge from distal region of stalk. Polyps numerous and crowded; retracted polyps often form small rounded protuberances on the surface of the polyparium, expanded polyps mostly 0,5 mm in length and diameter preserved. Polyps without conspicuous or permanent calyces but may form hemispherical protrusions on the surface of the polyparium when retracted. These protuberances are capable of retraction into the polyparium. Sclerites from surface of lobes are predominantly compact eight-radiates (capstans), 0,040–0,065 mm in length, with angular or thorny tubercles. A few sclerites are triradiates or modified capstans, approximately 0,035–0,040 mm long. Sclerites of the stalk are also primarily capstans, 0,03–0,05 mm in length, with tubercles markedly angular to deltoid.

Colony colour highly variable: white, yellow, pink, orange, orange-red, reddish-brown, deep cherry red or brick red. Some colonies may be bicoloured. Polyps white. Colour is permanent due to sclerite pigmentation, restricted to surface of colony, interior white.

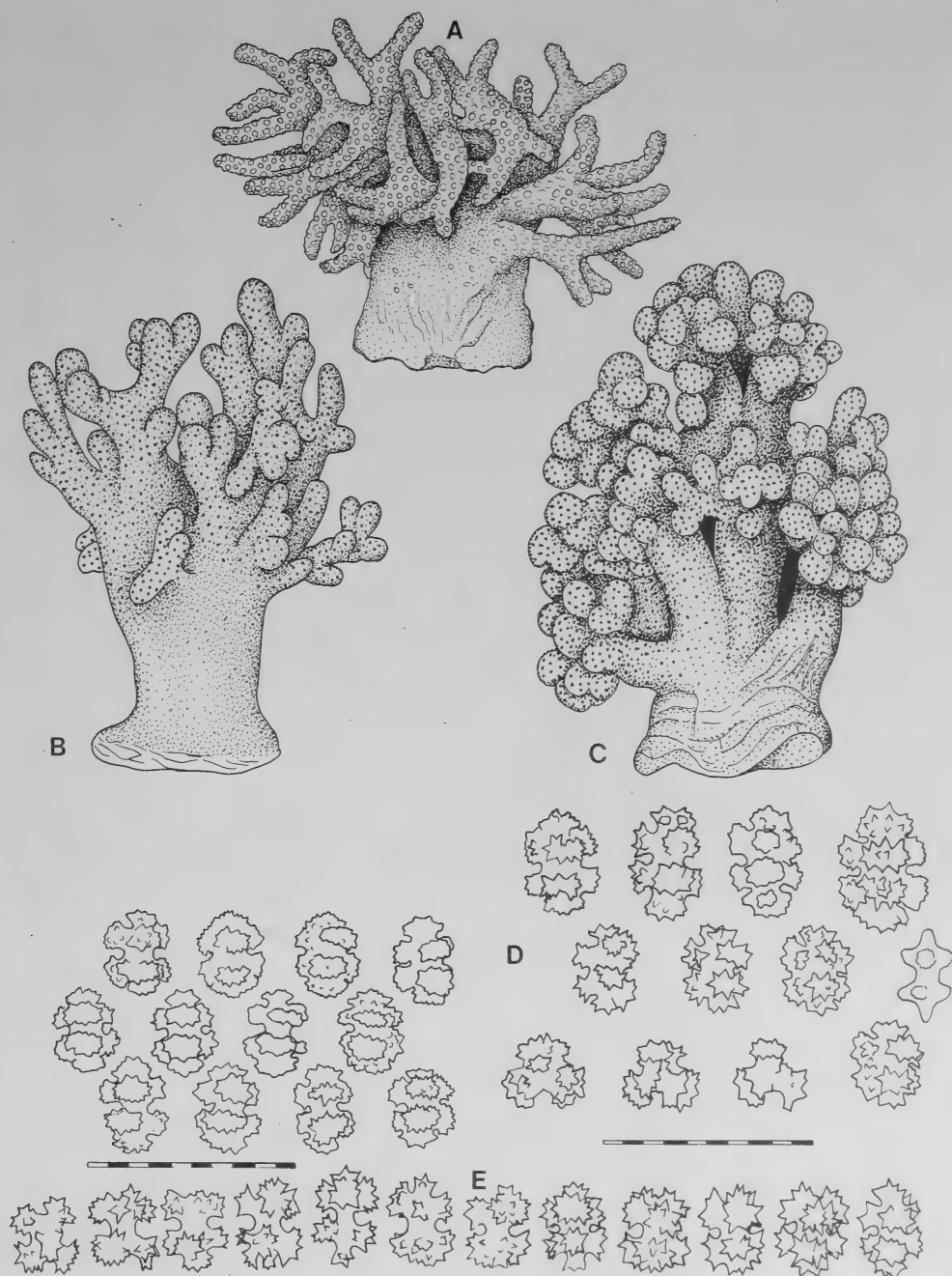


Fig. 22. *Alcyonium valdiviae* Kükenthal, 1906. A-C. Lateral views of three entire colonies. A. 38 mm in height. B. 37 mm in height. C. 55 mm in height. D. Coenenchymal sclerites from the polyparium. E. Stalk sclerites. Scale bars = 0,1 mm.

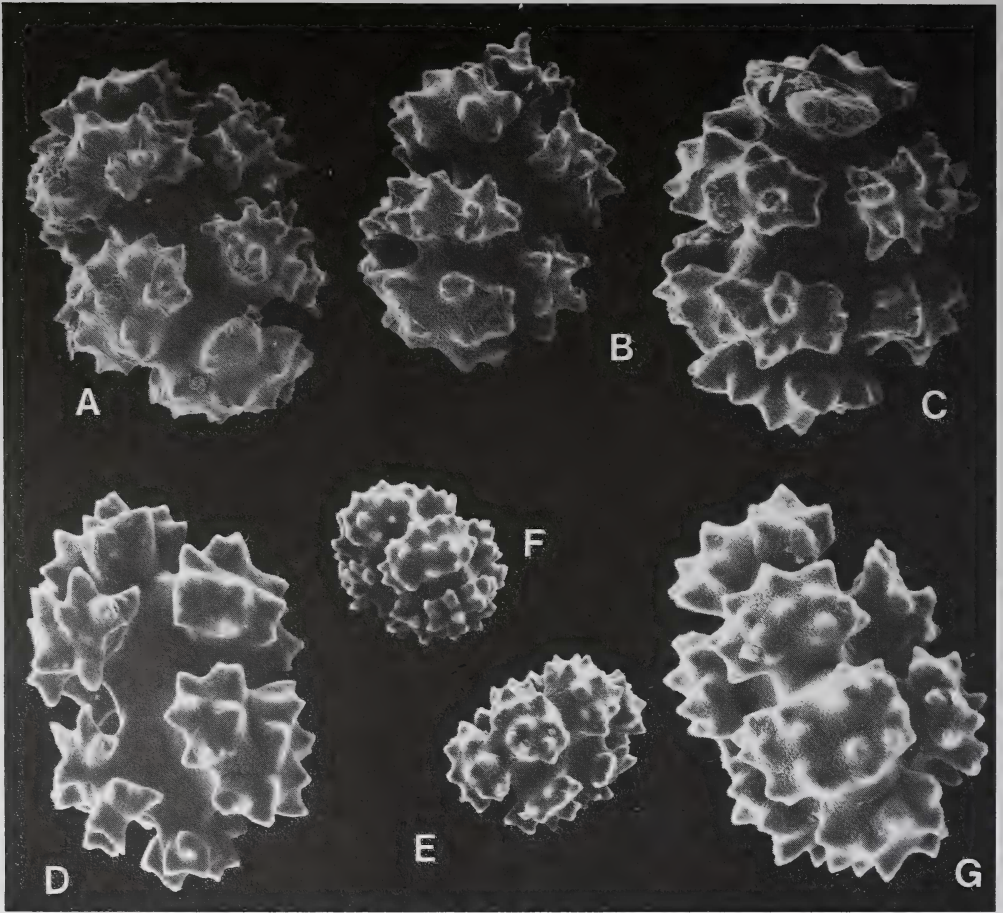


Fig. 23. Scanning electron micrographs of *Alcyonium valdiviae* Kükenthal, 1906; polyparium sclerites. A. 0,046 mm. B. 0,042 mm. C. 0,04 mm. D. 0,057 mm. E. 0,05 mm. F. 0,045 mm. G. 0,059 mm.

#### *Distribution*

Apparently a southern African endemic; known from the west coast of the Cape Peninsula to Boteler Point (northern Natal); 10–100 m in depth (Verseveldt & Williams, 1988; Williams in press *a*). Type locality is the Agulhas Bank, south-east of Cape Agulhas.

#### *Remarks*

This is a highly variable species with regard to coloration. Colonies from the west coast of the Cape Peninsula are commonly bright orange, less frequently yellow, and some colonies exhibit both yellow and orange colour. They form a



common constituent of subtidal rock walls and reefs at 14–18 m depth. Colonies from the Cape Agulhas region are white, pink, or yellow. Colonies from Algoa Bay are vivid orange-red, common at 10 m depth. Colonies from the eastern Cape Province near East London are mostly white or yellow, sometimes reddish-brown with yellow-tipped lobes, frequently encountered at 30–40 m. Colonies from northern Natal are commonly bicoloured with stalks brick red and polyparia golden yellow. Some are red with only the terminal tips of the lobes yellow. Some colonies from the western Cape Province are orange with yellow-tipped lobes.

*Alcyonium valdiviae* differs from other southern African *Alcyonium* species by having lobate growth form and sclerites of capstans approximately 0,05 mm in length. Common at depths of 30–78 m.

Hickson (1900) and Thomson (1910) misidentified material from the Cape Province as *Alcyonium pachyclados*. According to Tixier-Durivault (1966: 52) and Verseveldt (1971: 10), sclerites of this species have rounded to slightly angular, tubercles and are large dumb-bells (double stars) up to 0,12 mm in length. The species was considered by them to belong to the genus *Cladiella*, and has a widespread Indo-Pacific distribution, from the Red Sea and Madagascar to the south-western Pacific. I believe that Hickson's and Thomson's material can be considered conspecific with *Alcyonium valdiviae*, as their descriptions agree well with characteristics of this species. At present, I do not consider *Cladiella pachyclados* as a constituent of the South African fauna.

*Lobularia rutila* was described by Tixier-Durivault for a specimen from off St Lucia (27 m in depth). The specimen can easily be included within the wide range of colour variants in *Alcyonium valdiviae*. The genus *Cladiella* (*Lobularia*, *Microspicularia*, and *Sphaerella* are synonyms) possesses sclerites of double heads or double stars, not capstans (eight-radiates). Since Tixier-Durivault's specimens contain capstans rather than double heads, the correct generic name is *Alcyonium*.

### *Alcyonium variabile* (Thomson, 1921)

#### Figs 1A, 24, 25A–E

*Alcyonium antarcticum* (non Wright & Studer, 1889) Hickson, 1900: 73, pl. 4 (fig. A, A').

*Alcyonium* (*Metalcyonium*) *patagonicum* (non May, 1899) Kükenthal, 1906: 47 (*part.*).

*Metalcyonium patagonicum* (non May, 1899) Thomson, 1910: 562, pl. 1 (fig. 8), pl. 2 (fig. 12), pl. 3 (figs 22, 26–29), pl. 4 (figs 30–32).

*Metalcyonium variabile* Thomson, 1921: 152; 1923: 47, 69.

*Metalcyonium variabile* var. *molle* Thomson, 1921: 162, pl. 5 (fig. 2), pl. 6 (figs 1–3); 1929: 47–69.

*Metalcyonium variabile* var. *durum* Thomson, 1921: 165, pl. 5 (figs 3, 4); 1923: 47, 69.

*Alcyonium paessleri* (non May, 1899) Molander, 1929b: 4.

*Alcyonium fungiforme* Tixier-Durivault, 1954: 385, figs 1–3.

*Alcyonium luteum* Tixier-Durivault, 1954: 388, fig. 4.

*Alcyonium variabile* Williams, 1986b: 241–270, figs 1–15.

*Material*

SAM-H3166, Hottentots Huisie, Cape Peninsula ( $33^{\circ}59'S$   $18^{\circ}21'E$ ), 23 m, 15 June 1983, 4 colonies, SCUBA, coll. W. R. Liltved. SAM-H3167, Hottentots Huisie, Cape Peninsula ( $33^{\circ}59'S$   $18^{\circ}21'E$ ), 13–16 m, 18 August 1983, 10 colonies, SCUBA, coll. G. C. Williams. SAM-H3770, off Hout Bay, Cape Peninsula ( $34^{\circ}05'S$   $18^{\circ}20'E$ ), 39 m, 27 April 1985, 4 colonies, SCUBA, coll. G. C. Williams.

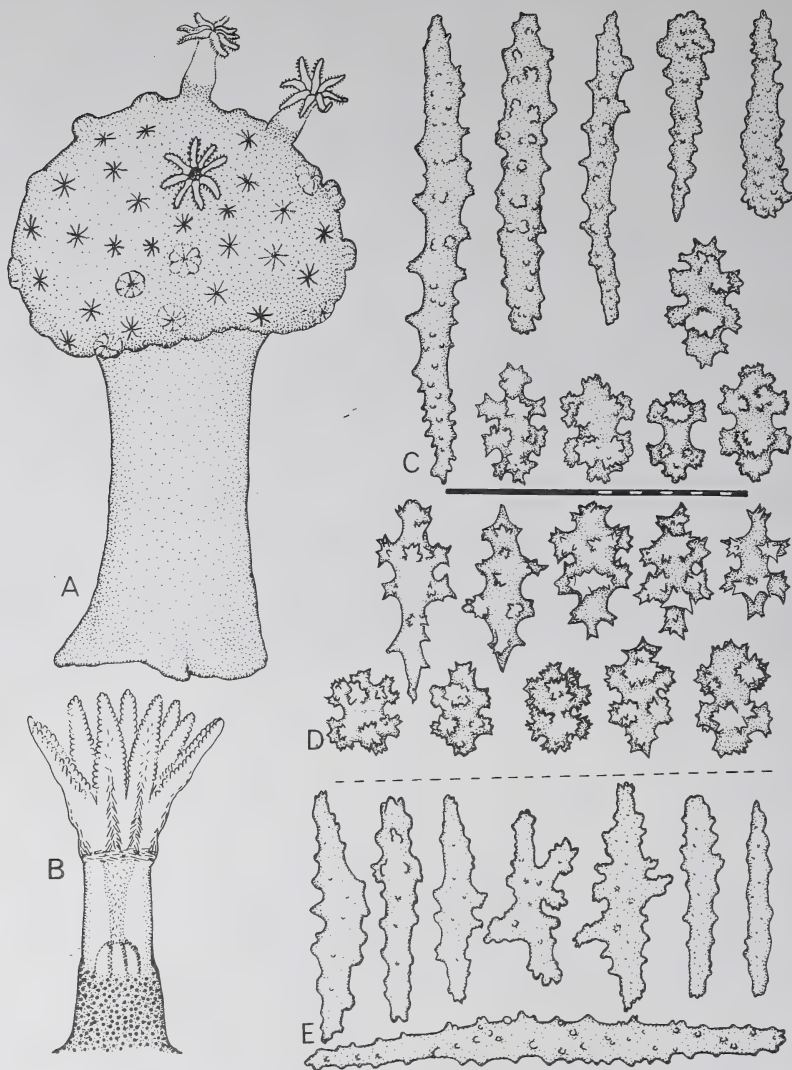


Fig. 24. *Alcyonium variabile* (Thomson, 1921). A. Entire colony, 40 mm length. B. Single polyp, 12 mm length. C. Sclerites from the capitulum. D. Sclerites from the stalk. E. Sclerites from the anthocodia. C-E. Scale bar = 0,2 mm.

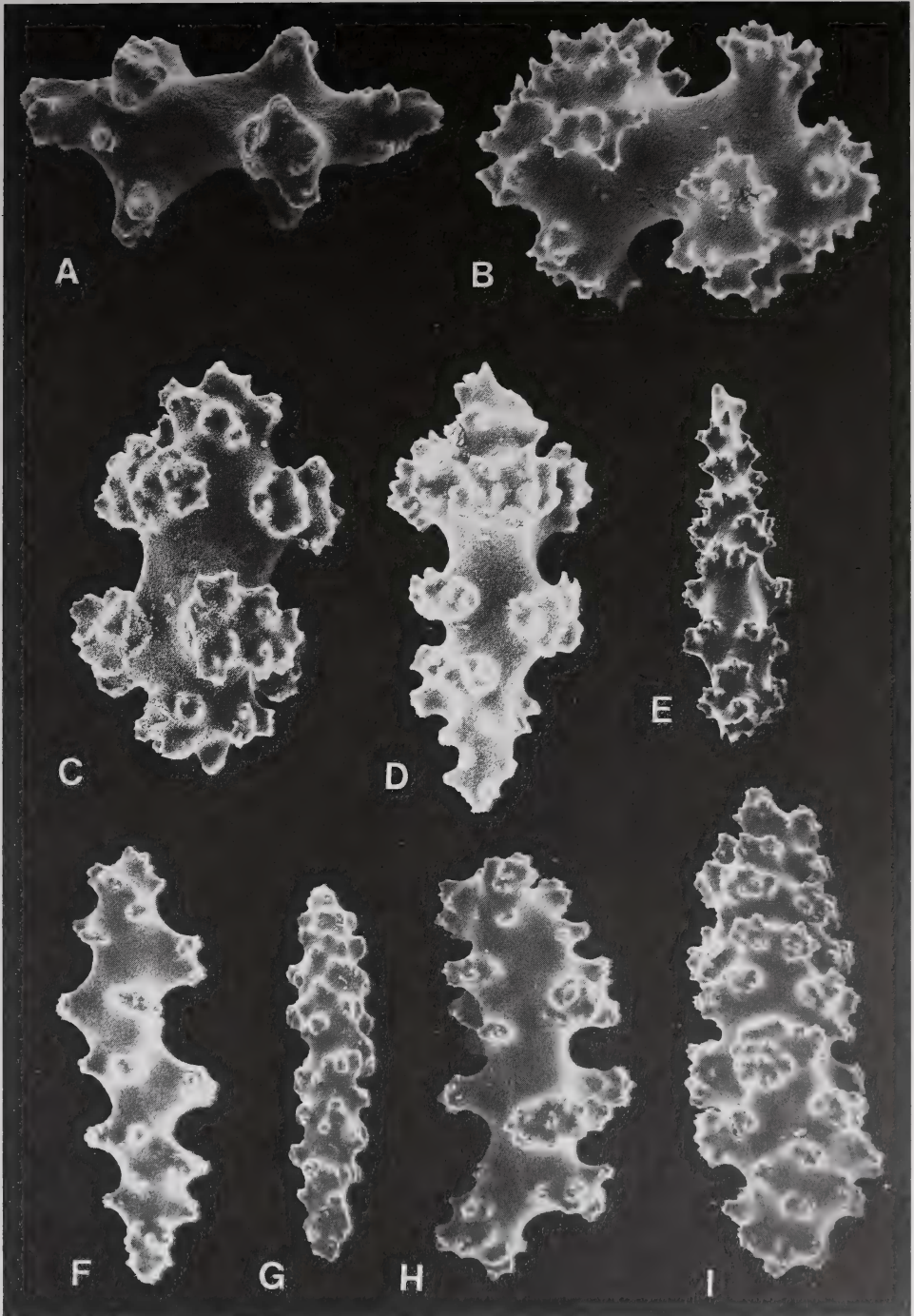


Fig. 25. Scanning electron micrographs. A-E. *Alcyonium variabile* (Thomson, 1921): sclerites from surface of capitulum. A. 0,066 mm. B. 0,055 mm. C. 0,072 mm. D. 0,096 mm. E. 0,115 mm. F-I. *Alcyonium wilsoni*, coenenchymal sclerites. F. 0,21 mm. G. 0,24 mm. H. 0,15 mm. I. 0,23 mm.



### Description

Colonies examined are 20–50 mm in length. Colony mushroom-shaped, unbranched, capitate; a spherical capitulum arises from a conspicuous stalk. Polyps covering entire surface of capitulum. Stalk and capitulum strongly delineated. Polyps completely retractile into capitulum. Polyps with proximal region strongly impregnated with sclerites forming a calyx-like base. Sclerites dense and varied. Polyps with crown and points in neck region, slender spindles and rods in tentacles, capstans in calyx, tuberculate spindles, clubs, and capstans in coenenchyme of capitulum and stalk. Colour highly variable: red, red-purple, orange, yellow, pink, white, grey or various combinations of these. Colour permanent, originating within the sclerites.

### Distribution

Presumably endemic to southern Africa; known from the Atlantic coast of the Cape Peninsula to the Tugela River mouth, Natal; depth range 13–468 m (Williams in press *a*). Type locality is off East London, eastern Cape Province.

### Remarks

This is perhaps the most commonly encountered soft coral of the South African continental shelf. The species is commonly observed by SCUBA divers in the Cape of Good Hope and Cape Agulhas regions, but not in False Bay. It is a common benthic species of subtidal horizontal rock reefs and vertical walls. Strikingly different colour varieties may be encountered within a few centimetres of each other. Numerous colonies representing several distinct colour varieties may be brought up in a single dredge haul. For a detailed account of this species, including variability and a historical survey of systematics and synonymy, see Williams (1986b).

*Alcyonium variable* differs from other southern African *Alcyonium* species by capitate growth form and sclerites of spindles, needles, rods, clubs, and capstans.

### *Alcyonium wilsoni* Thomson, 1921

Figs 25F–I, 26

*Alcyonium (Erythropodium) wilsoni* Thomson, 1921: 160, fig. 3; 1923: 50, 69.

### Material

SAM-H558 (holotype), off Knysna Heads (34°12'S 23°02'E), 73 m, 11 October 1900, colony attached to brachiopod shell, large dredge, coll. S.S. Pieter Faure survey, PF 10219. SAM-H3820, off Llandudno, west coast Cape Peninsula (34°00'S 18°20'E), 21 m, 24 January 1984, colony attached to brachiopod shell, SCUBA, coll. G. C. Williams.

### Description

The two colonies examined are attached to the valves of brachiopods, probably of the genera *Kraussina* and *Megerlina*. Globular polyparies (up to 5 mm in diameter) arise from thin and membranous, often spreading bases that adhere to the brachiopod shells. Retracted polyps are 1,5 mm in diameter. Usually 6–20 polyps per polypary. Polyps restricted to polyparies, none arise directly from membranous base. Sclerites of the polyparies and coenenchyme of

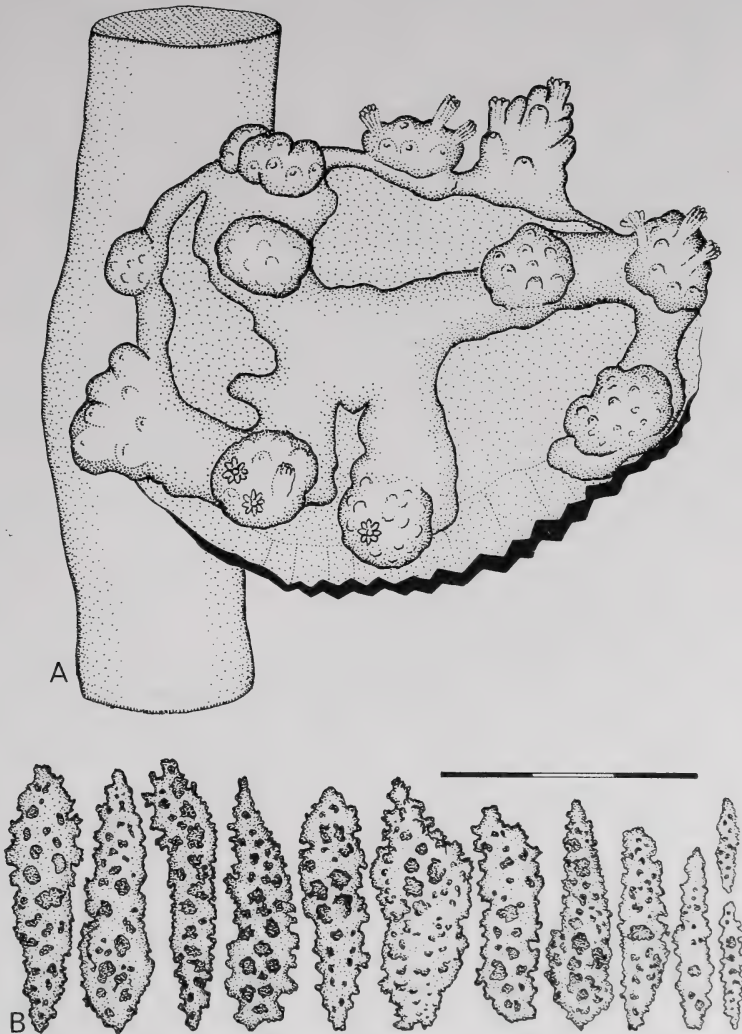


Fig. 26. *Alcyonium wilsoni* Thomson, 1921. A. Entire colony growing on a brachiopod (*Kraussina* sp.) that is attached to a fragment of stylasterine coral; length of coral fragment 23 mm. B. Sclerites from polypary and base of colony; scale bar = 0,3 mm.

the membranous base are predominantly tuberculated spindles and clubs 0,10–0,33 mm in length. Globular forms are rare. The autozooids have crown and points of mostly slender spindles approximately 0,15 mm long. Tubercles of all sclerites are usually dense and coarse, often low, but sometimes thorny. Colour of colonies in life not known; cream-white or brownish-white when preserved.

### *Distribution*

Known only from the above material—Cape Peninsula to Knysna, 21–73 m in depth; apparently endemic to southern Africa. Type locality off Knysna, south coast of South Africa.

### *Remarks*

*Alcyonium wilsoni*, *A. fauri*, and *A. foliatum* are superficially similar species and may be confused; all three may have membranous growth forms with polyparies of more-or-less globular aggregations of polyps, and alcohol-soluble pigments. Accurate identification can only be made by examination of coenenchymal sclerites. The three species possess coarsely tuberculated sclerites and can usually be distinguished by sclerite shape only. *Alcyonium wilsoni* has elongated clubs and spindles predominant (Figs 25F–I, 26). *Alcyonium fauri* has spindles and clubbed spindles (see Figs 14, 15) as well as many globular to oval spheroids or compact capstans; and *A. foliatum* is characterized by having distinct double heads and leaf clubs predominant (see Figs 16, 17A–E).

Six membranous colonies in the South African Museum collection are problematical: a colony attached to a brachiopod shell, 51 m depth in Sebastian Bay (34°29'S 21°00'E) (SAM–H879); two colonies from 11 m depth in Algoa Bay (33°50'S 25°40'E), which were blue-violet in life (SAM–H3326, H3350); a colony from 20 m depth off Onrus River (34°29'S 19°12'E), mottled purple and white in life (SAM–H3807); and two colonies from 14–33 m depth off the Atlantic side of the Cape of Good Hope Peninsula (34°00'S 18°20'E), salmon pinkish-orange in life (SAM–H3806, H3808). These colonies mainly have elongate clubs and spindles but some sclerites are more robust and ovoid to spheroid, and may have large thorny tubercles characteristic of *Alcyonium fauri*. It may be that *A. wilsoni* is in fact yet another variant of the extremely variable *A. fauri*. A detailed comparative examination of a large suite of specimens from throughout coastal southern Africa is necessary to determine the true nature of these taxa.

### *Other species of Alcyonium*

Six additional species of *Alcyonium* have been described or recorded from southern Africa.

*Alcyonium membranaceum* was originally described by Kükenthal (1906: 53) from St Francis Bay (34°7'S 24°59'E) at 100 m depth. Kükenthal characterized the species by its membranous growth form and sclerites of spindles in the polyps with capstans and spindles in the coenenchyme. Since Kükenthal's



material is not available presently for examination, I cannot determine the status of this species. The possibility exists that it represents yet another variant of the highly variable *A. fauri* complex. If this were proved valid, then the name would have priority over all other names applied, since it precedes them all with the exception of *A. purpureum* Hickson, 1904, which Lüttschwager (1922) found to be preoccupied. Thomson (1921: 159) listed *A. membranaceum* without description or figures, from several South African south coast localities: Mossel Bay (18–22 m), Cape St Blaize (22 m), and Algoa Bay (46 m). Tixier-Durivault (1954: 263) listed the species from Plettenberg Bay, South African south coast, without description or figures.

Thomson (1921: 158) equivocally identified a small and incomplete colony from northern Natal (165 m) as *Alcyonium reptans* Kükenthal (1906: 53), originally described from Bouvet Island (457 m). Tixier-Durivault (1954: 264) identified two colonies from 200 km south of Cape Infanta, Cape Province (177 m) as *Parerythropodium reptans*. Neither author gave descriptions or figures, but merely listed the species. This material is not presently available for examination. It is therefore not possible to determine the validity of Thomson's or Tixier-Durivault's identification, and I consider these to be dubious records.

Thomson (1921: 157) identified a specimen (SAM-H560) from the Cape Town region (40 m depth) as *Alcyonium sollasi* Wright & Studer (1889: 240), originally described from the Straits of Magellan (100 m depth). The material is fragmentary and badly damaged through desiccation. An examination of sclerites reveals that they are superficially similar to those of *A. wilsoni*. However, considering the unsatisfactory condition of Thomson's material, I must consider it unidentifiable and his identification of it as *A. sollasi* to be dubious. Thomson did not give a description or figures for the material.

A single colony in the SAM collection (H562) was described and identified by Thomson (1921: 157) as *Alcyonium sarcophytoides* Burchardt (1903: 671), originally described from the eastern Malay Archipelago. The golden-yellow specimen is about 80 mm in length and digitiform with a well-demarcated stalk and an elongate, smooth and unfolded polyparium. Many sclerites from the surface coenenchyme of the polyparium are very thin, slender needles up to 0,35 mm in length. These do not resemble any sclerites described or figured by Burchardt. At present, I consider this material to be of an undetermined species.

Tixier-Durivault (1954: 265, figs 4, 5) described *Parerythropodium roseum* from depth 27–28 m in False Bay (34°07'S 18°31'E). Groot & Weinberg (1982) have shown that the genus *Parerythropodium* must be considered a synonym of *Alcyonium*. According to Tixier-Durivault, the species is distinguished by rose-carmin coloration that is conserved in alcohol, and diverse sclerites that are mostly irregularly-shaped radiates and branched forms that are less than 0,24 mm in length. A specimen in the South African Museum collection (SAM-H3811), also from False Bay resembles *Alcyonium roseum* but possesses a markedly different growth form with small polyparies of one to four polyps

arising from a stolon-like base. Tixier-Durivault did not designate a holotype for *A. roseum*. A comparison of type material of *A. roseum* with SAM-H3811 is necessary since Tixier-Durivault's description lacks sufficient detail for comparison.

Thomson (1921: 155) identified a colony from off Durban (155 m depth) as *Alcyonium glomeratum* Hassall, 1843, a species known from the British Isles, France, and possibly the western Mediterranean (Manuel 1981: 42). Recently acquired material from Durban (133–165 m depth) is conspecific with Thomson's specimen. This species cannot be considered a member of the genus *Alcyonium* because of the possession of permanent calyces into which the polyps retract. A comparison of the Durban material with type specimens of the European *A. glomeratum* is necessary to ascertain valid taxonomic status but the latter material is not presently available for comparison.

#### Genus *Anthomastus* Verrill, 1878

*Anthomastus* Verrill, 1878: 376. Kükenthal, 1910: 3.

#### Diagnosis

Colonies fungiform; a broad capitulum usually arising from a narrower stalk. Holdfast often with long projections. Capitulum smooth, rounded spherical, or somewhat flattened. Polyps dimorphic restricted to distal capitulum. Stalk and polyparium distinctly delimited. Autozooids relatively large and few in number. Siphonozooids numerous between autozooids, usually conspicuous. Sclerites are mainly double stars, double heads, and capstans, with sparsely spinose rods in the inner stalk and capitulum. Colour often red, rarely white.

A genus of about nine species, north Atlantic to Bovet Island and the Indo-Pacific, mainly in deep water, 50–2 800 m; includes some of the deepest known of all soft corals.

*Type species. Anthomastus grandiflorus* Verrill, 1878, northern Atlantic.

#### *Anthomastus giganteus* Tixier-Durivault, 1954

Figs 27–28

*Anthomastus giganteus* Tixier-Durivault, 1954: 526, figs 1, 2. D'Hondt, 1988: 271, text-fig. 5, pl. 1 (figs 9–12).

#### Material

SAM-H3246 (paratype), off Cape Columbine (32°53,3'S 17°30'E), 309 m, 27 September 1947, 2 colonies, dredge, coll. University of Cape Town Ecological Survey. SAM-H3666, Sandy Point, Transkei (32°39,2'S 28°45,2'E), 450 m, 14 July 1984, 1 colony, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM-H3667, Stony Point, Transkei (32°38,9'S 28°45,0'E), 360 m, 12 July 1984, 3 colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

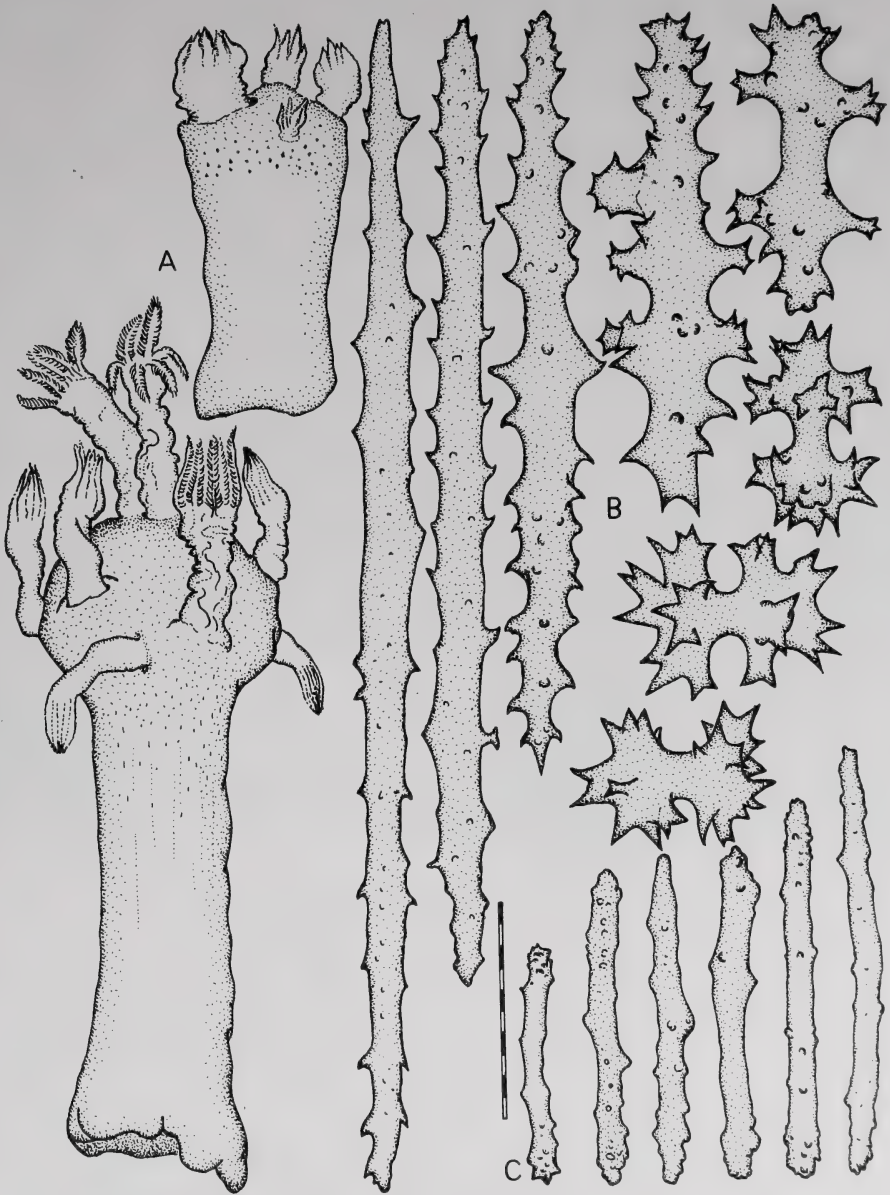


Fig. 27. *Anthomastus giganteus* Tixier-Durivault, 1954. A. Two entire colonies, 40 mm in length (top) and 138 mm in length (bottom). B. Stalk sclerites. C. Sclerites from pinnules of tentacles. B-C. Scale bar = 0,1 mm.



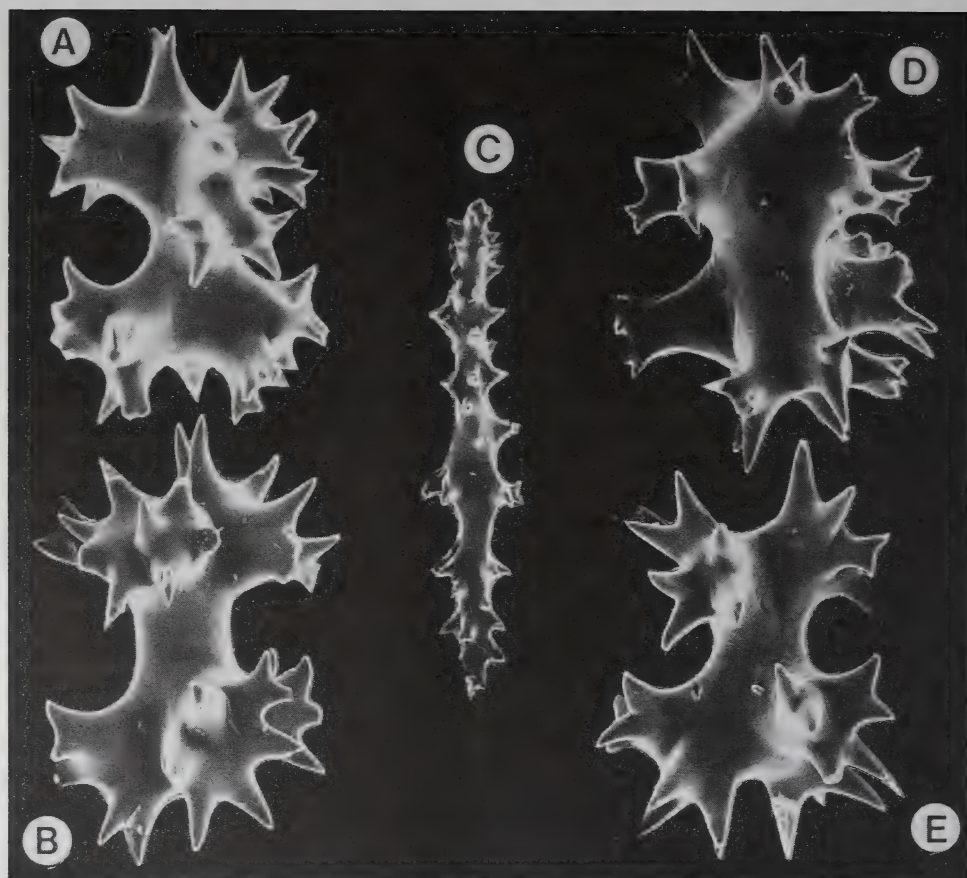


Fig. 28. Scanning electron micrographs of *Anthomastus giganteus* Tixier-Durivault, 1954; stalk sclerites. A-B. 0,11 mm. C. 0,28 mm. D. 0,12 mm. E. 0,08 mm.

### Description

Colonies examined range in length from 30–110 mm. Each colony is unilobate, unbranched, with an upright and well-developed stalk. The capitulum arises from the distal end of the stalk and may be rounded or spheroid, or only slightly flared from the rest of the stalk. Surface of stalk smooth and uniform. Autozooids generally less than 12 per colony; very large, up to 35 mm in length and 10 mm in diameter preserved. Calyces absent. Autozooids capable of partial if not total retraction into capitulum. Siphonozooids numerous on surface of capitulum between autozooids, <0,5 mm in diameter. Autozoid tentacles with needle-like sclerites <0,2 mm long, particularly numerous in pinnules. Body walls of anthocodiae with sclerites filling spaces between siphonozooids; these are thorny rods and double stars similar to those of the stalk. Surface of stalk and stalk interior with numerous thorny double stars <0,15 mm long and

slender elongate needle-like sclerites with simple thorny processes (which may be hook-like), up to 0,55 mm long. Colonies cream-white to rose or pale red. Autozooids often greyish in alcohol.

### *Distribution*

Apparently endemic to southern Africa, known from the south-west coast of South Africa to Transkei. This species is one of the deepest known identified soft corals in southern African waters, ranging from 309 m to 450 m depth. *Alcyonium variabile* was recorded by Thomson (1921: 164) at 468 m off Cape Recife. The type locality of *Anthomastus giganteus* is off Cape Columbine, west coast of South Africa.

### *Remarks*

*Anthomastus giganteus* is distinguished by its relatively elongate stalk, the capitulum that is only slightly wider than the stalk, and by stalk sclerites that are needles with hook-like tubercles, together with thorny double stars.

### *Remarks on the genus Anthomastus*

Hickson (1904: 217) identified a single specimen from 450 m off Cape Recife, near Port Elizabeth as *Anthomastus grandiflorus* Verrill, 1878. Jungersten (1904: 13) maintained that Hickson's material does not resemble any known specimen of *A. grandiflorus* and therefore does not belong to the species. Bock (1938: 44) gave the new name *A. hicksoni* for this specimen. It is possible that *A. giganteus* is synonymous with *A. hicksoni* since colony shape of the two species is similar, but a comparison of type material is necessary because Hickson's description does not include figures of sclerites. D'Hondt (1988: 271) discussed the systematics of four species of *Anthomastus*, including *A. giganteus* and *A. hicksoni*.

### Genus *Cladiella* Gray, 1869

*Lobularia* (non Lamarck, 1836). Ehrenberg, 1834: 281. Tixier-Durivault, 1943: 437.

*Cladiella* Gray, 1869: 125. Tixier-Durivault, 1966: 35.

*Sphaerella* Gray, 1869: 122. Bayer, 1956: F188.

*Microspicularia* Macfadyen, 1936: 28.

### *Diagnosis*

Colonies with a distinct basal stalk. Distal polyparium is multi-lobed or many branched to form many short, rounded, knob-like lobes during contraction; these are often elongate and finger-like with acute tips during expansion. Polyps are restricted to this multi-lobed polyparium. Polyps monomorphic, capable of complete retraction into polyparium, without permanent calyces. Sclerites are primarily compact double heads or double stars, usually <0,12 mm in length. Colour often white or cream in alcohol.

A genus of over 40 species, from the tropical Indo-West Pacific, in relatively shallow water. *Cladiella* species are common constituents of shallow-water coral-reef regions in the Indo-Pacific.

*Type species.* *Alcyonium tuberculatum* Quoy & Gaimard, 1833.

*Cladiella madagascarensis* (Tixier-Durivault, 1944)

#### Remarks

Tixier-Durivault (1960: 360) listed *Cladiella madagascarensis* (Tixier-Durivault, 1944) from Inhaca Island, southern Mozambique, without description or figures. According to Tixier-Durivault (1966: 47), the species is characterized by possessing sclerites of double stars (0,07–0,11 mm long); colony colour greyish-white; distribution—Comoro Islands, Madagascar, and southern Mozambique.

Pople (1960) recorded the genus *Cladiella* from intertidal rock pools near Durban, Natal, and tentatively identified the species as *Sphaerella krempfi* (Hickson, 1919). No description or figures were given and thus the identity of the material must be considered dubious.

An unidentified species of *Cladiella* is occasionally encountered on the coral reefs at Sodwana Bay, northern Zululand at 13 m in depth (Williams 1989a: 142; in press b).

#### Genus *Eleutherobia* Pütter, 1900

*Eleutherobia* Pütter, 1900: 449. Verseveldt & Bayer, 1988: 27.

#### Diagnosis

Colonies unbranched; digitiform, capitate, or digitate. Polyps monomorphic. Retracted polyps form distinct hemispherical, cup-like or dish-like permanent calyces on the capitulum surface. Anthocodia completely retractile into calyx, sometimes forming a low rounded eight-rayed protuberance inside the calicular cup. Sclerites are primarily eight-radiates and capstans.

A genus of perhaps 15 species of the Indo-West Pacific; three species in southern Africa.

*Type species.* *Eleutherobia japonica* Pütter, 1900, Japan.

*Eleutherobia rotifera* (Thomson, 1910)

Figs 29, 30D–F

*Alcyonium rotiferum* Thomson, 1910: 573, pl. 1 (figs 3, 4), pl. 4 (fig. 38); 1923: 47, 50, 68.

*Eleutherobia rotifera* (Thomson, 1910) Verseveldt & Bayer, 1988: 36, figs 18c, 29 (*part.*).

#### Material

SAM–H566 (type material) Keiskamma Point, eastern Cape Province (33°15'S 27°30'E), 60 m, 27 August 1901, 2 colonies, dredge, S.S. *Pieter Faure* survey, PF 13553. SAM–H849 and H850, Great Fish Point, eastern Cape



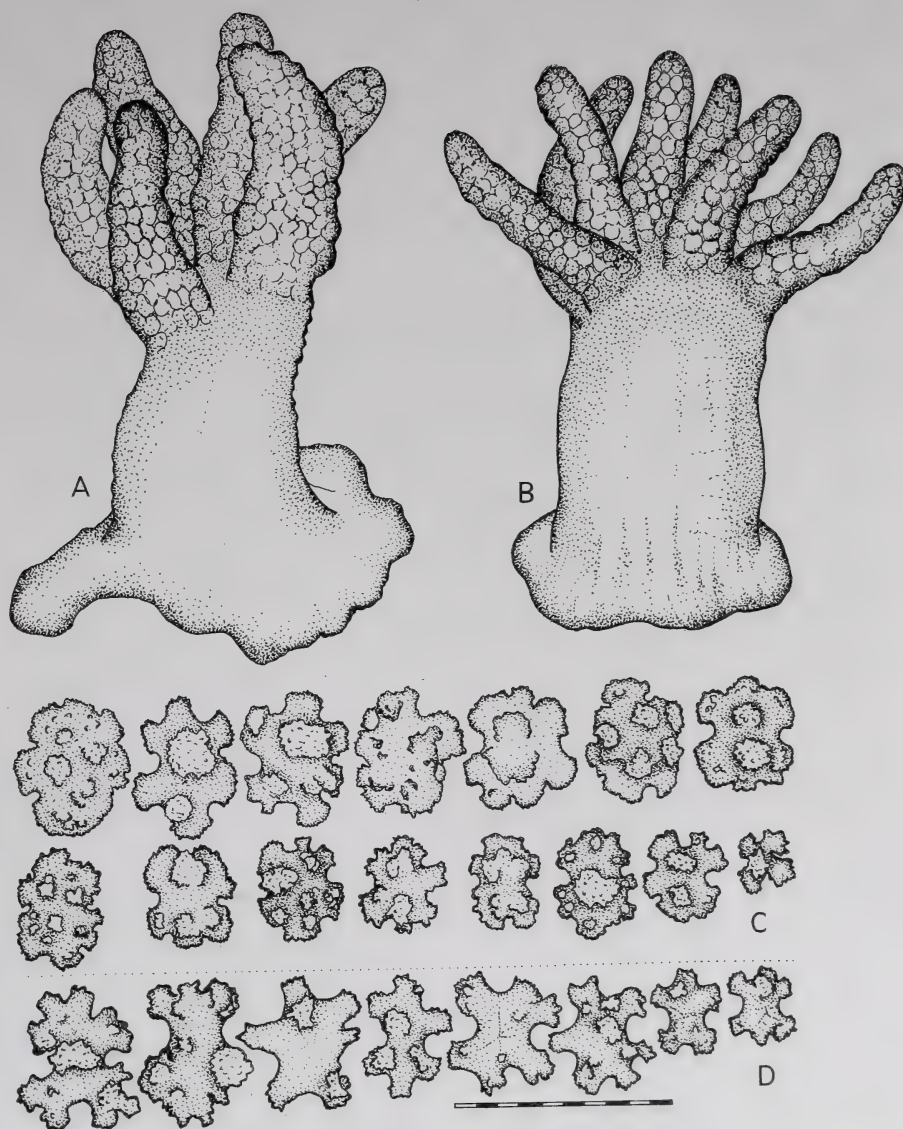


Fig. 29. *Eleutherobia rotifera* Thomson, 1910. A. Entire colony, 30 mm in length. B. Entire colony, 35 mm in length. C. Polyparium sclerites. D. Stalk sclerites. C-D. Scale bar = 0.1 mm.

Province (33°30'S 27°10'E), 90 m, 4 September 1901, 11 colonies, dredge, S.S. *Pieter Faure* survey, PF 13727 and PF 13727B.

### Description

The colonies that were examined range in length from 20 to 35 mm. Colonies are upright, digitate; 3–8 finger-like unbranched lobes arise from a prominent robust stalk. Lobes are up to 15 mm long and 4 mm wide. Stalk with a broad base forming an extended holdfast. Surface of preserved colonies markedly wrinkled or pustulate. Polyps restricted to lobes. Anthocodiae completely retractile into prominent, rounded calyces up to 1,5 mm in diameter. Sclerites numerous in stalk, lobes and calyces; almost exclusively compact 6–8 radiate capstans, 0,030–0,065 mm in length. Colour golden yellow.

### Distribution

Apparently endemic to South Africa, known only from the eastern Cape Province south-west of East London, 60–120 m depth (Williams in press a). Type locality is Keiskamma Point.

### Remarks

*Eleutherobia rotifera* differs from other southern African *Eleutherobia* species by digitate growth form, prominent stalk, and sclerites that are tuberculate spheroids and capstans.

### *Eleutherobia studeri* (Thomson, 1910)

Figs 30A–C, 31

*Bellonella studeri* Thomson, 1910: 550, pl. 1 (fig. 1), pl. 3 (fig. 23), pl. 4 (figs 45a–e); 1921: 171; 1923: 50, 71, chart 2.

*Eleutherobia studeri* Verseveldt & Bayer, 1988: 41 (figs 33, 36, 37).

### Material

SAM-H1249 (holotype), St Francis Bay, Cape Province (34°10'S 24°50'E), 42–64 m, 3 May 1906, 1 colony, large trawl, S.S. *Pieter Faure* survey, PF 18831. SAM-H909, off Flesh Point, Cape Province (34°18'S 21°55'E), 60 m, 29 January 1904, 2 colonies attached to a large gastropod shell (*Fusinus ocelliferus* Lamarck, 1816), large trawl, S.S. *Pieter Faure* survey, PF 18423.

### Description

Colonies examined are 40–95 mm in length. Colonies are capitate, the polyp-bearing capitulum arises from an upright stalk. Stalk length approximately 40–50 per cent of total colony length. A distinct demarcation is present between the stalk and polyparium. Capitulum usually slightly elongate or conical, rarely spheroid. Polyps retractile, crowded, and distributed over entire surface of capitulum. Preserved expanded polyps <12 mm in length. Anthocodiae with crown and points of needle-like spindles 0,15–0,30 mm long. Wall of pharynx

often densely spiculated. Wall of calyx with capstan-like radiates, 0,05–0,08 mm long. Surface region of polyparium with mostly spindles and radiates 0,04–0,13 mm in length. Surface of stalk with capstan-like radiates 0,04–0,1 mm long. Stalk interior with thorny spindles 0,12–0,20 mm long. Preserved colony colour yellow or pink.

#### *Distribution*

Known only from south and east coasts of South Africa, Mossel Bay to central Natal, 42–121 m in depth. Thomson (1921: 171; 1923, chart 2) recorded

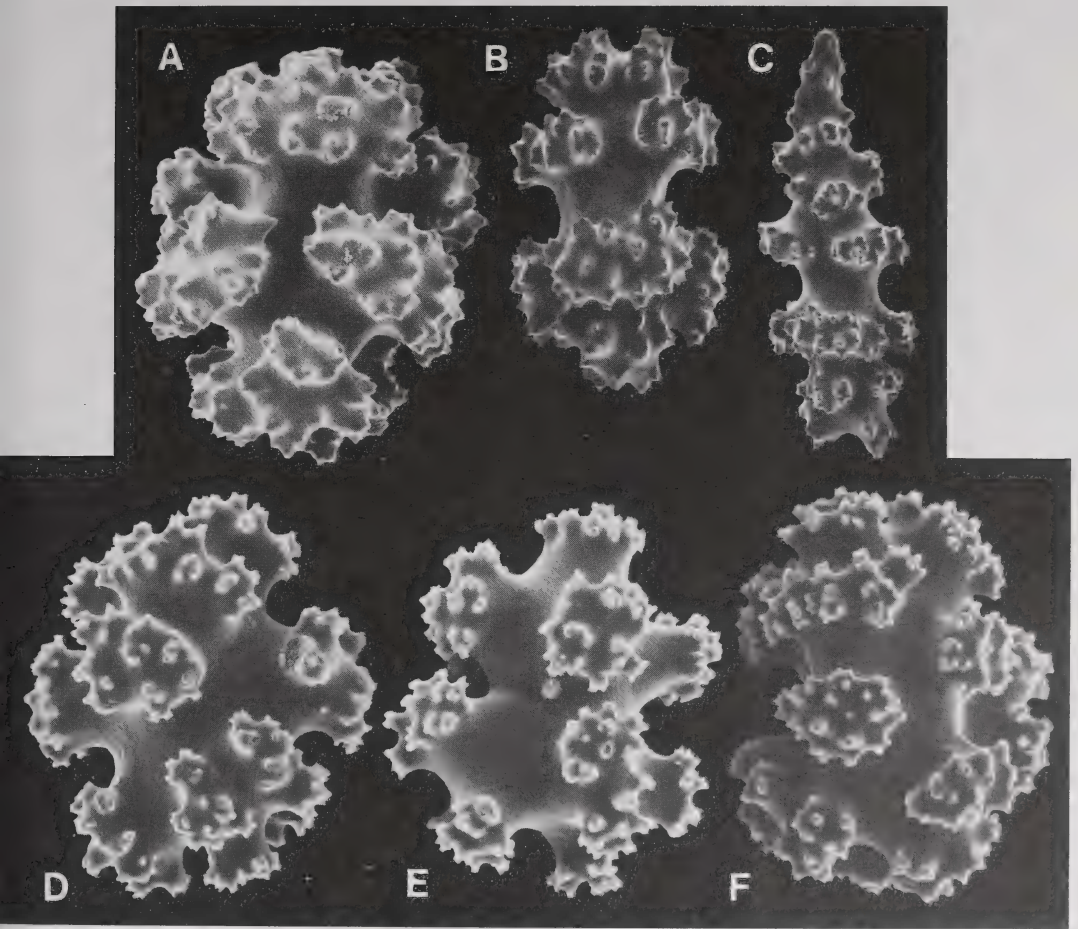


Fig. 30. Scanning electron micrographs. A–C. *Eleutherobia studeri* (Thompson, 1910); sclerites from surface of polyparium. A. 0,05 mm. B. 0,065 mm. C. 0,10 mm. D–F. *Eleutherobia rotifera* Thomson, 1910; sclerites from surface of polyparium. D. 0,052 mm. E. 0,054 mm. F. 0,047 mm.



the species from Umtwalume River mouth (Natal) at 46 m depth and off Great Fish Point (eastern Cape Province) at 121 m. Type locality St Francis Bay (south coast of Cape Province).

#### Remarks

*Eleutherobia studeri* is distinguished by the possession of pliable dish-like calyces that are formed during the retraction of polyps; the terminal ends of the polyps form eight-rayed protuberances inside these calyces; sclerites are radiates and spindles; anthocodial sclerites are present.

#### Remarks on the genus *Eleutherobia*

A third species of *Eleutherobia* is encountered in southern Africa. Thomson (1921: 155) identified a colony from Durban (155 m in depth) as *Alcyonium glomeratum* (Hassall, 1843). Recently collected material from Durban to Cape St Lucia, Natal (depth 100–164 m), has been compared with Thomson's specimen, with which it appears to be conspecific. However, the colonies possess permanent calyces in which the anthocodiae retract, and the coenenchymal sclerites are primarily eight-radiates and capstans. Because of these characters, I consider the material to represent an undetermined species of the genus *Eleutherobia*, that cannot be attributed to *A. glomeratum*.

#### Genus *Lobophytum* von Marenzeller, 1886

*Lobophytum* von Marenzeller, 1886: 352, 362. Pratt, 1903: 514; Tixier-Durivault, 1966: 55. Verseveldt, 1983: 4.

#### Diagnosis

Colonies encrusting, dish-shaped or stalked and upright. Polyp-bearing capitulum arises from a basal region or distinct stalk. Capitulum relatively smooth or variously lobed, folded, or plicate. These are closed folds which may be digitate or plate-like, resembling ridges or crests. Polyps dimorphic. Sclerites of capitulum are tuberculated spindles, usually somewhat club-shaped with ill-defined heads. Sclerites of stalk are generally capstans <0,3 mm in length.

About 47 species from the Indo-Pacific, usually in warm shallow water, and often associated with coral reefs. See Verseveldt (1983) for a detailed revision of the genus, with a key and descriptions for the recognized species.

*Type species.* *Lobophytum crassum* von Marenzeller, 1886; Indo-Pacific.

#### Remarks

Tixier-Durivault (1960: 360) recorded *Lobophytum crebiplicatum* von Marenzeller, 1886, and *L. crassum* von Marenzeller, 1886 (as *L. crassospiculatum* Moser, 1919), without descriptions or figures, from Inhaca Island, southern Mozambique. Verseveldt (1983: 32) considered Tixier-Durivault's identification of *L. crebiplicatum* as a misidentification and considered the species to be confined to the western Pacific Basin. Several unidentified species

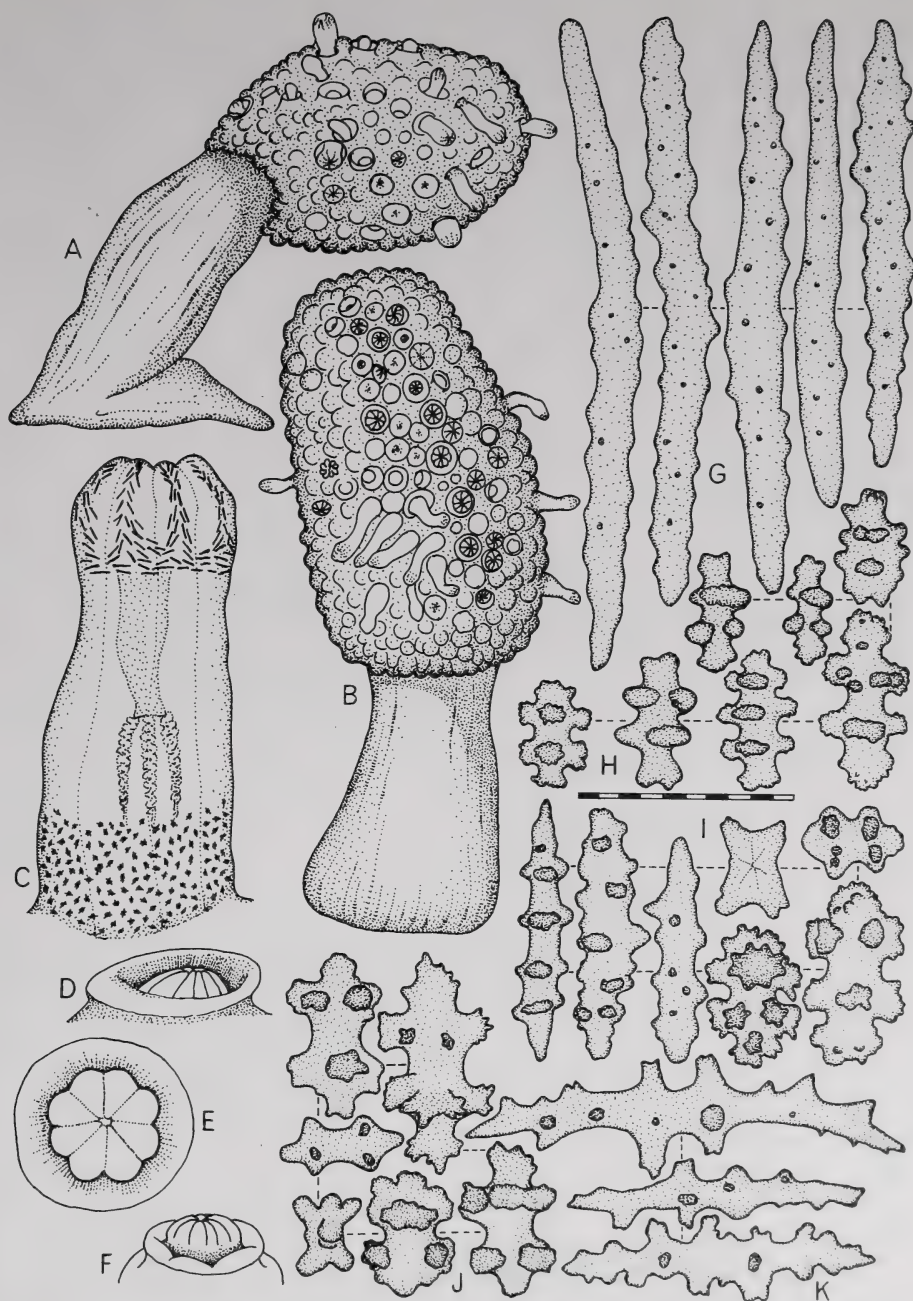


Fig. 31. *Eleutherobia studeri* (Thompson, 1910). A. An entire colony, 55 mm in length. B. An entire colony, 90 mm in length. C. A single exsertile polyp, 8 mm long, tentacles contracted. D-F. Three cup-like calyces with retracted anthocodiae; 1.0-1.4 mm in diameter. G. Sclerites from the crown and points of the anthocodia. H. Calyx sclerites. I. Sclerites from the surface region of the polyparium. J. Sclerites from the surface of the stalk. K. Sclerites from the stalk interior. G-K. Scale bar = 0.1 mm.

of the genus are found on the coral reefs and coral assemblages at Sodwana Bay and Kosi Bay (northern Natal), 12–19 m in depth (Williams 1989a: 142; in press b). Material representing these species is in the South African Museum collection. The alcyoniids *Lobophytum*, *Sarcophyton* and *Sinularia* are three of the most abundant and conspicuous soft coral genera in the warm and shallow coral reef regions of the Indo-Pacific. Verseveldt & Benayahu (1983: 3) reported that these genera, together with the nephtheid genus *Litophyton*, often form monospecific carpets at depths of 1–6 m in the Red Sea. In the shallow sublittoral of northern Natal and southern Mozambique, the most commonly encountered soft coral genera are *Sinularia*, *Sarcophyton*, *Lobophytum*, *Dendronephthya*, *Cladiella*, *Xenia*, and *Anthelia*.

### Genus *Malacacanthus* Thomson, 1910

*Malacacanthus* Thomson, 1910: 583. Williams, 1987b: 1337.

#### Diagnosis

Colonies capitate, broad capitulum arising from a columnar stalk. Stalk enveloped by rough cuticle. Polyps dimorphic, restricted to distal surface of capitulum. Capitulum retractile into distal portion of stalk. Autozooids and siphonozooids numerous and crowded. Autozooids capable of complete retraction into capitulum. Calyces absent. Tentacles with a single row of pinnules per side. Sclerites absent from all parts of colony.

A monotypic genus, endemic to southern Africa.

*Type species. Heteroxenia capensis* Hickson, 1900; South Africa.

### *Malacacanthus capensis* (Hickson, 1900)

Figs 1C, 32

*Heteroxenia capensis* Hickson, 1900: 70, pl. 4 (fig. C); 1931: 172. Thomson, 1923: 47, 66–67. Broch, 1939: 4. Day *et al.*, 1970: 16.

?*Xenia uniserta* Kükenthal, 1906: 22, pl. 1 (fig. 5), pl. 6 (figs 25–29). Thomson, 1923: 47, 66–67.

*Malacacanthus rufus* Thomson, 1910: 583, pl. 1 (fig. 6); 1921: 171; 1923: 48, 71. Broch, 1939: 12, fig. 8. Tixier-Durivault, 1954: 390. Day *et al.*, 1970: 15.

?*Heteroxenia uniserta*: Day *et al.*, 1970: 16.

*Malacacanthus*: Bayer, 1981b: 912.

*Malacacanthus capensis* Williams, 1987b: 1338, figs 1–7.

#### Material

SAM–H3192, off Llandudno, west coast Cape Peninsula (34°01'S 18°20'E), 25–31 m, 24 September 1983, 6 colonies, SCUBA, coll. W. R. Liltved. SAM–H3864, off Llandudno (34°01'S 18°20'E), 21 m, 24 January 1984, 2 colonies, SCUBA, coll. G. C. Williams. SAM–H3865, Sunny Cove, False Bay (34°09'S 18°26'E), 12 m, Dec. 1980, 1 colony, SCUBA, G. M. Branch.



### Description

Preserved colonies 12–80 mm in height. Colonies fungiform, a broad capitulum arising from a prominent cylindrical stalk. A tough horn-like cuticular envelope surrounds the stalk and proximal portion of the capitulum. Polyps restricted to the distal surface of the capitulum. Polyp-bearing surface of capitulum is plainly delimited from the stalk and proximal region of the capitulum by a distinct boundary, which is formed by the distal termination of the cuticle. Polyps dimorphic. Polyp calyces absent. Autozooids often over 100 per colony, up to 25 mm in length. Siphonozooids conspicuous in mature colonies, crowded between autozooids, approximately 1,0 mm in diameter. Autozooids retractile into capitulum. Capitulum capable of almost total retraction into distal region of stalk. Colonies in this state assume a cylindrical shape. Tentacles with one row of pinnules per side. Sclerites altogether absent.

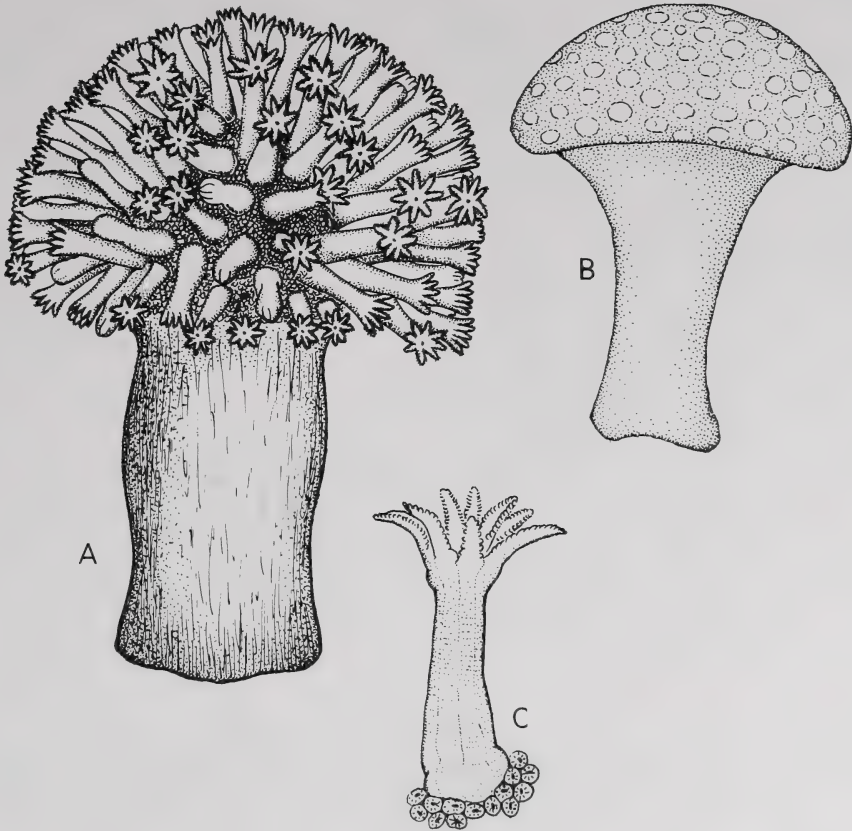


Fig. 32. *Malacacanthus capensis* Hickson, 1900. A. Entire colony with polyps expanded, total length 80 mm. B. Entire colony with polyps retracted, 80 mm. C. Single autozooid with fourteen siphonozooids at base; length of figure = 22 mm.

*Distribution*

Known from the west coast of the Cape Peninsula to the Gonubie region, eastern Cape Province, between 10 and 93 m in depth. Apparently endemic to southern Africa. A locally common species on vertical rock walls and reefs. One of the few species that is common both on the Atlantic and False Bay sides of the Cape Peninsula. Type locality is False Bay.

*Remarks*

The cuticular covering of the stalk provides a substratum for epizoic organisms such as encrusting white didemnid ascidians.

*Malacacanthus capensis* is distinguished by the presence of siphonozooids, total lack of sclerites, and horny cuticle surrounding the stalk. Branch & Branch (1981: 152), illustrated this species and referred to it as the 'sun-burst soft coral'.

*Genus Minabea* Utinomi, 1957

*Minabea* Utinomi, 1957: 139. Utinomi & Imahara, 1976: 206. Bayer, 1981b: 913.

*Diagnosis*

Colonies digitiform. Finger-like polyparium gradually tapers distally from a stalk that is short and thick. Apex of colony broadly rounded, not markedly pointed. Polyps dimorphic. Autozooids completely retractile into polyparium. Siphonozooids not densely distributed between autozooids. Sclerites are mostly capstans, with some spindles.

At least three species from the Indo-Pacific: Japan, Australian Great Barrier Reef, and south-eastern Africa.

*Type species.* *Minabea ozakii* Utinomi, 1957, by monotypy; Japan.

*Remarks*

Several colonies of two undetermined species of *Minabea* have recently been collected from Transkei and northern Natal (Zululand), 250–370 m in depth. The colonies are either pale brownish-orange in colour or white with pinkish retracted polyps.

This account represents a new record for the genus to southern Africa and to the south-western Indo-Pacific.

*Genus Sarcophyton* Lesson, 1834

*Sarcophyton* Lesson, 1834: 517. Pratt, 1903: 505. Tixier-Durivault, 1966: 106. Verseveldt, 1982: 5.

*Diagnosis*

Colonies mushroom-shaped to somewhat funnel-shaped or cup-shaped. A broad capitular disc arises from a distinct stalk. Surface of capitulum smooth, usually with open folds on the disc margin. Disc spreading and wider than distal

portion of stalk. Polyps dimorphic. Autozooids numerous, often several hundred per mature colony; capable of total retraction into capitulum. Siphonozooids minute, contained on surface of disc between autozooids. Sclerites often numerous and dense, usually tuberculated clubs and spindles.

A large genus in warm tropical seas of the Indo-Pacific; mostly shallow water, often inhabiting coral reefs; about 36 valid species; see Verseveldt (1982) for a detailed revision of the genus and a key to the recognized species.

*Type species.* *Sarcophyton lobulatum* Lesson, 1834, by monotypy; Indo-Pacific.

#### Remarks

Several presently unidentified species occur on the submerged platform coral reefs of northern Natal at Sodwana Bay and Kosi Bay, 12–27 m depth (Williams 1989a: 142; in press *b*), and representative material is present in the South African Museum collection. Tixier-Durivault (1960: 360) listed *Sarcophyton trocheliophorum* von Marenzeller, 1886, from Inhaca Island, southern Mozambique.

#### Genus *Sinularia* May, 1898

*Sinularia* May, 1898: 24. Lüttschwager, 1915: 5. Kolonko, 1926: 293. Tixier-Durivault, 1945: 56; 1951: 1; 1966: 164. Verseveldt, 1980: 4.

#### Diagnosis

Colonies low, flat, and encrusting or erect with a definite stalk. Polyp-bearing capitulum arises from an encrusting basal portion or a distinct stalk. Surface of capitulum relatively smooth to plicate, forming crests or ridges, or intricately lobate with many crowded upright finger-like lobes. Polyps monomorphic. Sclerites of capitulum usually clubs with distinct heads and thorn clubs, 0.06–1.5 mm long. Sclerites of stalk are generally large robust spindles, >2.0 mm in length.

A large genus with about 105 species of the tropical Indo-Pacific. Common in warm and shallow waters of coral reef regions. See Verseveldt (1980) and Verseveldt & Benayahu (1983) for a revision of the genus with a key and descriptions for the recognized species.

*Type species.* *Sinularia brassica* May, 1898, by monotypy; Indo-Pacific.

#### Remarks

Tixier-Durivault (1960: 360) recorded *Sinularia polydactyla* (Ehrenberg, 1834), without description or figures, from Inhaca Island, southern Mozambique. Single specimens of two distinct species have been collected from Sodwana Bay, northern Natal (18 m depth) and are in the South African Museum collection. The two specimens are partial, freeze-dried, and somewhat damaged. Many presently unidentified colonies representing several species are also present in the South African Museum collection and occur on the coral



reefs at Sodwana Bay and Kosi Bay, 12–27 m (Williams 1989a: 142; in press b). Some colonies from 12 m depth can attain a diameter of over 2 m.

Genus *Verseveldtia* Williams, 1990b

*Verseveldtia* Williams, 1990b: 22.

*Diagnosis*

Colonies unbranched, capitate. Stalk narrow, elongate. Polyps dimorphic. Anthocodiae capable of total retraction into capitulum. Permanent calyces absent. Coenenchymal sclerites are mainly double stars, barrels, eight-radiates, or tuberculate spheroids.

A genus of two species, endemic to southern Africa.

*Type species.* *Verseveldtia trochiforme* (Hickson, 1900), by subsequent designation; South Africa.

*Verseveldtia trochiforme* (Hickson, 1900)

Figs 33, 34F–I

*Sarcophytum trochiforme* Hickson, 1900: 77, pl. 3 (fig. C), pl. 6 (fig. C). ?Thomson, 1921: 168; 1923: 48, 70.

*Anthomastus trochiformis* Kükenthal, 1910: 6. Verseveldt, 1982: 10.

*Verseveldtia trochiforme* Williams, 1990b: 22–28, text-figs 1–3, pl. 1, pl. 2 (figs a–e).

*Material*

SAM-H724, off Ncera River Mouth, eastern Cape Province (co-ordinates unknown), 91 m, 7 August 1901, 3 incomplete colonies, dredge, S.S. *Pieter Faure* survey, PF 13329. SAM-H742, same data as SAM-H724, 1 incomplete colony, PF 13329C.

*Description*

The partial colonies do not exceed 60 mm in length. Colonies are capitate, an enlarged capitulum arises from an elongate and narrow stalk. The largest specimen has a capitulum measuring 12 mm in width, whereas the stalk is 2–3 mm in width. The capitulum is dome-shaped or elliptical with the polyps covering the entire surface. Polyps are dimorphic. The retracted anthocodiae of the autozooids may form small protuberances on the surface of the capitulum but these are not true calyces, since the protuberances are capable of complete retraction into the capitulum. Autozooids are small and numerous (50–100 in number and 0.9–1.2 mm in diameter). Siphonozooids crowded between the autozooids, 0.3–0.5 mm in diameter. Sclerites of the capitulum surface and interior, as well as the stalk sclerites are predominantly eight-radiates, 0.05–0.11 mm in length. A few girdled spindles (0.110–0.114 mm) may also be present in the capitulum. The autozooid anthocodiae possess flattened plates, 0.04–0.07 mm in length, and girdled or tuberculate spindles, 0.10–0.17 mm in length.

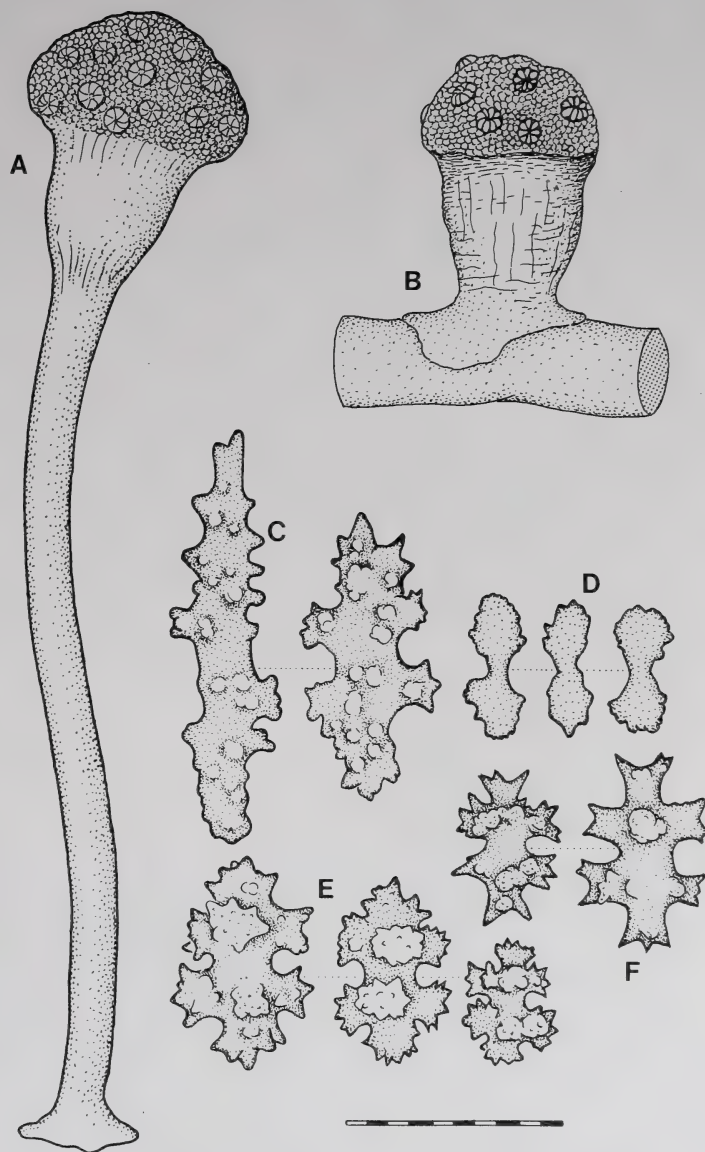


Fig. 33. *Verseveldtia trochiforme* (Hickson, 1900). A. Entire mature colony, 65 mm in height. B. Young colony attached to a foraminiferan fragment, 9 mm in height. C. Sclerites from the anthocodial wall. D. Tentacular sclerites. E. Sclerites from the capitulum. F. Stalk sclerites. Scale bar = 0,1 mm.

Colonies are light grey or brownish-white to cream, retracted autozooids are rust orange, siphonozooids are grey or cream in coloration.

### *Distribution*

Eastern Cape Province, the vicinity of East London, 82–97 m in depth (Williams 1990b, in press a).

### *Remarks*

Hickson (1900) assigned this species to the genus *Sarcophyton* (mis-spelled as *Sarcophytum*). Kükenthal (1910) recognized this as incorrect and placed the species in the genus *Anthomastus*. Verseveldt (1982) repeated Kükenthal's opinion and considered it an invalid species of *Sarcophyton*. *Verseveldtia trochiforme* does not have the sparsely spinose rods in the inner stalk that are characteristic of the genus *Anthomastus*.

Thomson (1921: 168) identified eleven specimens from Natal (46–165 m in depth) as *Sarcophytum trochiforme*. He did not give descriptions or figures for the material, other than stating that most of the colonies are reddish in colour. Because of this, it is possible that at least some of the specimens may be *Verseveldtia bucciniforme*. Examination of Thomson's material is necessary to establish valid taxonomic status.

*Verseveldtia trochiforme* is differentiated by a convex, dome-shaped polyp-bearing portion of the capitulum, coenenchymal sclerites that are primarily eight radiates, and colony colour greyish-white with rust-orange retracted autozooids and greyish-white siphonozooids.

### *Verseveldtia bucciniforme* Williams, 1990b

Figs 34A–E, 35

?*Anthomastus granulosus* (non Kükenthal, 1910) Thomson, 1921: 169.

?*Anthomastus trochiforme* (Hickson, 1900) Thomson, 1921: 168.

*Verseveldtia bucciniforme* Williams, 1990b: 28–34, text-figs 3–5, pl. 2 (figs f–i), pl. 3.

### *Material*

SAM–H3799, off Gonubie, eastern Cape Province (33°06,8'S 28°04,9'E), 90 m, 17 July 1984, 3 colonies, dredge, coll. G. C. Williams (R.V. *Meiring Naude*). SAM–H3800, off Mbotyi, Transkei (31°29,2'S 29°45,4'E), 50 m, 21 July 1982, 1 colony, dredge, coll. Natal Museum (R.V. *Meiring Naude*). SAM–H3801, off East London (33°15,0'S 27°58,0'E), 85 m, 17 July 1984, 1 colony, dredge, coll. G. C. Williams (R.V. *Meiring Naude*).

### *Description*

Colonies examined range in length between 12 and 20 mm. Colonies are funnel-shaped, markedly capitate with a long, slender stalk. Polyps restricted to the somewhat flattened capitular disc at the distal terminus of colony. Polyps dimorphic. Autozooids capable of total retraction into capitulum, usually 10–20



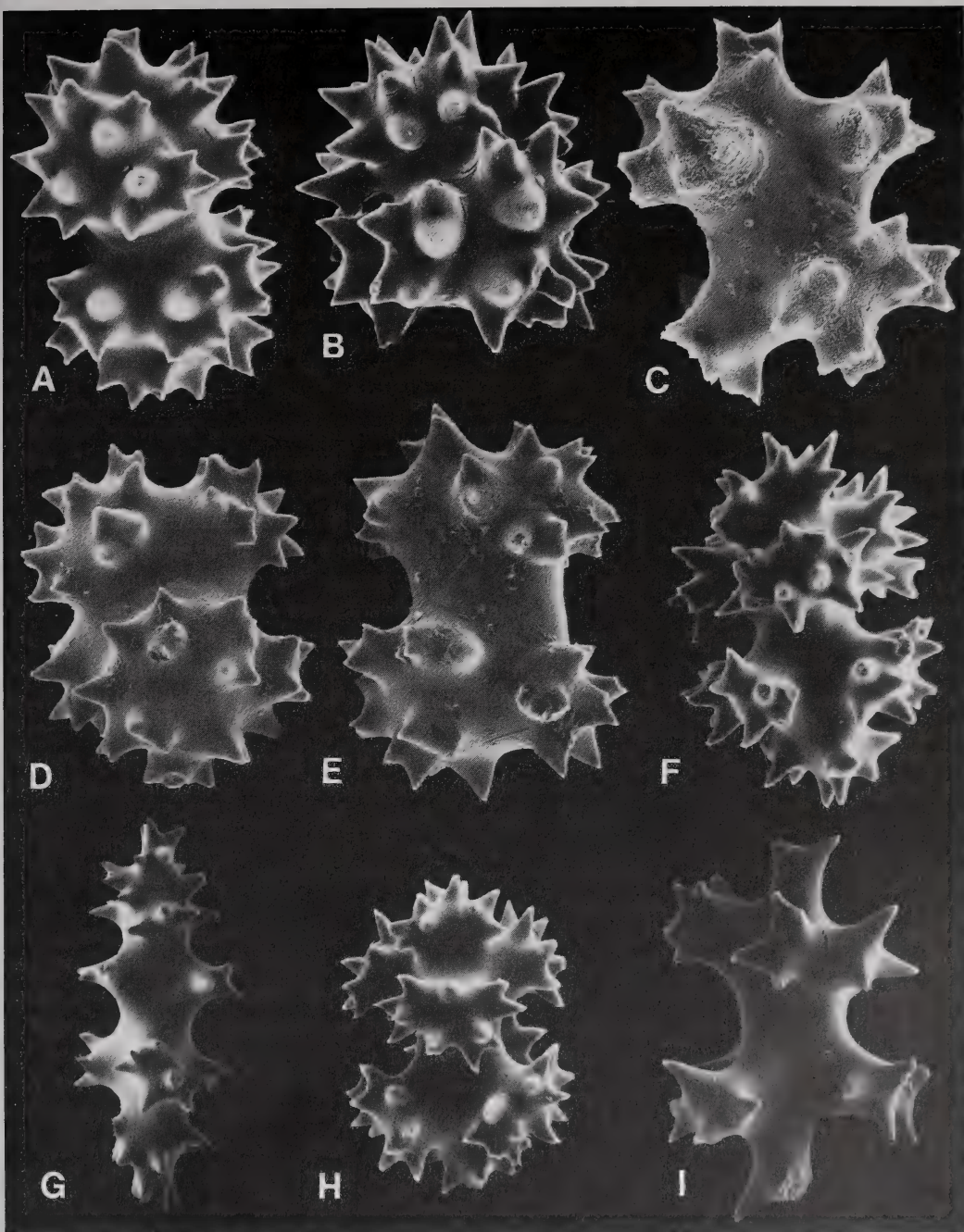


Fig. 34. Scanning electron micrographs. A-E. *Verseveldtia bucciniforme* Williams, 1990b. A-B. Sclerites from bases of polyps and surface of capitulum. A. 0.075 mm. B. 0.048 mm. C-E. Stalk sclerites. C. 0.058 mm. D. 0.08 mm. E. 0.08 mm. F-I. *Verseveldtia trochiforme* (Hickson, 1900). F. An eight-radiate from the capitular surface, 0.072 mm. G. Girdled spindle from the capitular surface, 0.114 mm. H. Sclerite from the interior of the capitulum, 0.060 mm. I. Stalk sclerite, 0.064 mm.

per colony, 1,5–2,0 mm in diameter when retracted. Siphonozooids crowded between autozooids, usually around 0,5 mm in diameter. The autozooids of all material examined have the anthocodiae totally retracted. Partly retracted autozooids may produce hemispherical protuberances on the surface of the capitulum but these are not true calyces since they too are capable of complete retraction into the capitulum. Sclerites of the capitular surface and interior, as well as the stalk are barrels, double stars and tuberculate spheroids, 0,06–0,08 mm in length. The anthocodiae contain rods and irregularly-shaped flattened platelets, 0,03–0,08 mm in length. Colonies orange, red or pink in colour with retracted autozooids and siphonozooids bright yellow.

### *Distribution*

Apparently endemic to South Africa, known from the eastern Cape, Transkei, and Natal coasts between East London and Durban, 50–90 m in depth (Williams 1990*b*, in press *a*). Type locality is off East London, eastern Cape Province.

### *Remarks*

Thomson (1921: 169) identified a specimen from 58 m off East London as *Anthomastus granulosus* Kükenthal, 1910. From his brief and unillustrated description, it seems probable that the colony actually belongs to *V. bucciniforme*. Like the two species of *Verseveldtia*, *A. granulosus* (from Japan) does not have sparsely spinose rods in the inner stalk and capitulum that are characteristic of the genus *Anthomastus*.

*Verseveldtia bucciniforme* is distinguished by a somewhat flattened or disc-shaped polyp-bearing portion of the capitulum, sclerites that are barrels, double stars, and tuberculate spheroids, and red colony colour with yellow siphonozooids and retracted autozooids.

### *Digitiform and capitate species of the families Alcyoniidae and Nidaliidae*

Approximately 18 species of southern African alcyoniids and nidaliids have digitiform or capitate growth forms. Many digitiform species have in the past been plagued with considerable confusion in the literature as to proper generic placement. Verseveldt & Bayer (1988) recently provided a much needed revision of four genera that contain digitiform species: *Bellonella* Gray, 1862, and *Eleutherobia* Pütter, 1900 (Alcyoniidae), and *Nidalia* Gray, 1835, and *Nidaliopsis* Kükenthal, 1906 (Nidaliidae), and named two new genera, *Inflatocalyx* (Alcyoniidae) and *Pieterfaurea* (Nidaliidae). This re-assessment has shown that *Metalcyonium* Pfeffer, 1888, is not a valid genus because the type species *M. capitatum* Pfeffer, 1888, can be accommodated in *Bellonella*. All of the above-mentioned genera have polyps that retract into permanent calyces or at least into protuberances composed of palisade-like arrangements of sclerites. Some digitiform alcyoniids do not possess permanent calyces but rather the polyps retract directly into the polyparium or into basal protuberances that are

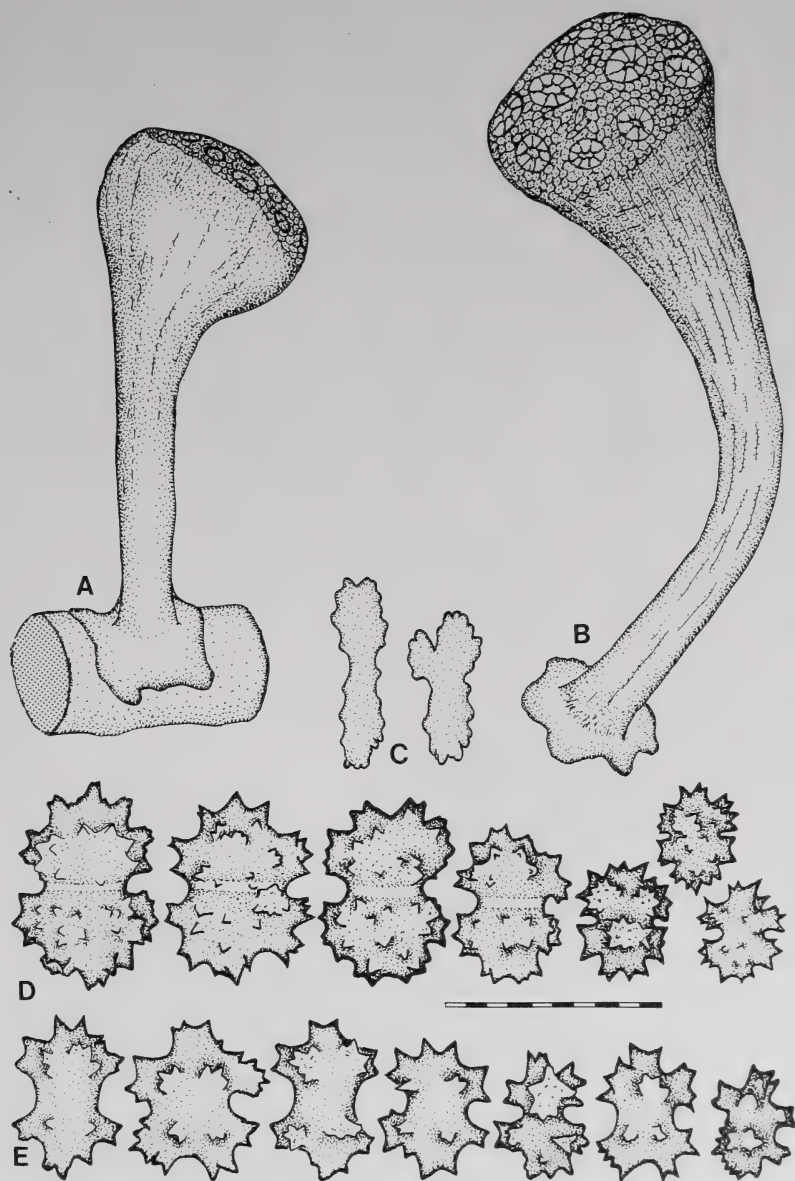


Fig. 35. *Verseveldtia bucciniforme* Williams, 1990b. A. Entire colony growing on a foraminiferan fragment, length of colony 13 mm. B. Entire colony, 17 mm in length. C. Sclerites from tentacles. D. Sclerites from polyps and capitulum. E. Stalk sclerites. C-E. Scale bar = 0,1 mm.



capable of complete retraction into the polyparium. Williams (1986a: 61; 1988: 18) maintained that the genus *Alcyonium* should be considered a morphologically diverse assemblage of species and that certain digitiform or capitate forms without permanent calyces can be accommodated within it. The southern African *Alcyonium moriferum* and *A. variabile* and the Japanese *A. muricatum* Yamada, 1950, and *A. pacificum* Yamada, 1950, are examples of such species. Eight of the digitiform or capitate southern African forms have been included in the present work: *Alcyonium mutabiliforme*, *A. moriferum*, *A. planiceps*, *A. variabile*, *Acrophytum claviger*, *Eleutherobia studeri*, *Pieterfaurea unilobata* and *P. khoisaniana*. Of the ten or so remaining undetermined species or those with unverified identifications (many of which have recently been collected from the southern African coast), the following names have been recorded by previous authors.

*Bellonella rubra* Brundin, 1896, was recorded by Thomson (1910: 554) (eastern Cape Province, Transkei, central Natal; 44–100 m). Utinomi (1957: 149) questioned Thomson's identification of the South African material. *Bellonella rubra* was originally known from the western Pacific. Tixier-Durivault (1954: 127) placed the species in the genus *Nidalia*. More recently, Verseveldt & Bayer (1988: 37) transferred it to the genus *Eleutherobia*. The South African material possesses sclerites that resemble those figured by Brundin. However, the colonies do not have non-retractile calyces, which are characteristic of the genera *Nidalia* and *Eleutherobia*. In fact, the polyps are capable of totally withdrawing into the polyparium without forming protuberances or permanent calyces. Because of this, I presently consider this taxon to be an undetermined species of the genus *Alcyonium*. The colonies vary from pink-magenta to deep wine-red, both in life as well as in alcohol.

*Metalcyonium clavatum* Pfeffer, 1889, was recorded by Thomson (1910: 556) from central Natal, 66–73 m. Thomson considered this southern African material (SAM-H550) to be conspecific with *M. clavatum* from the Subantarctic island of South Georgia. This identification cannot be validated without a comparison of Pfeffer's type material, since the original description lacks sufficient detail.

Thomson described three digitiform species with large sclerites: *Metalcyonium natalensis* Thomson (1910: 559—Durban, Natal, 71–73 m depth); *Metalcyonium lanceatum* Thomson (1921: 167—eastern Cape Province, 40 m depth); and *Sinularia unilobata* Thomson (1921: 172—East London to Durban, 40–93 m depth). *Metalcyonium natalensis* was later considered by Thomson (1921: 170) to be conspecific with *Acrophytum claviger* Hickson, 1900. *Sinularia unilobata* is synonymous with *Pieterfaurea unilobata*. *Metalcyonium lanceatum* possesses finely tuberculated needle-like spindles in both the stalk and polyparium, whereas *P. unilobata* has large robust spindles with ornate tuberculation.

The holotype of *M. lanceatum* (SAM-H793) has unfortunately been previously dried and somewhat damaged, thereby making detailed redescription and comparison difficult.

Kükenthal (1906: 48) described *Metalcyonium novarae* from the Cape of Good Hope in a brief description, without any figures of the colony or sclerites. Many colonies recently collected from the Cape Agulhas region (24–54 m depth) show characteristics that conform to Kükenthal's description. However, a comparison of these specimens with Kükenthal's type material is necessary for a positive identification; the latter is at present not available for examination.

#### Family **Nidaliidae** Gray, 1869

Colonies unbranched (capitate or digitiform) or arborescent, with still and cylindrical branches. Texture of colonies rough and rigid. Polyps monomorphic or dimorphic. Anthocodiae retractile into permanent, spiculate calyces or 'palisade-like' protuberances. Sclerites are primarily large, tuberculate spindles, mostly longitudinally aligned.

Six genera of widespread distribution, but concentrated in the Indo-Pacific, West Indies, central Atlantic, and southern oceans. Two genera in southern Africa.

#### Genus *Pieterfaurea* Verseveldt & Bayer, 1988

*Pieterfaurea* Verseveldt & Bayer, 1988: 66.

#### *Diagnosis*

Colonies unbranched, digitiform. Polyps monomorphic. Anthocodia retractile into a permanent conical calyx composed of a palisade-like arrangement of spindle-like sclerites. Sclerites of the colony are robust coarsely tuberculated spindles and clubbed spindles, densely distributed in the surface region of the stalk and polyparium. Similar sclerites are common in the colony interior.

A genus of two species, endemic to southern Africa.

*Type species.* *Sinularia unilobata* Thomson, 1921; South Africa.

*Pieterfaurea khoisaniana* (Williams, 1988) comb. nov.

Figs 1G, 36, 37A–D

*Alcyonium khoisanianum* Williams, 1988: 7–14, figs 5–10, 14, 16A.

#### *Material*

SAM–H3411 (holotype), off Danger Point, Cape Province (34°43'4,94"S 19°20'30,19"E), 48 m depth, 29 April 1984, 1 sectioned colony, SCUBA, coll. W. R. Liltved, Sea Fisheries Research Institute, Line Fish Survey.

#### *Description*

The holotype is 82 mm in length. Colonies are digitiform; a finger-like polyparium arises from a prominent stalk. Polyps are numerous, completely retractile, relatively large (up to 12 mm long and 3 mm wide), calyces absent. Sclerites of the anthocodiae are small rods up to 0,33 mm long, sparsely

distributed in crown and points. Sclerites from surface region of polyparium and stalk are robust, densely tuberculated spindles or slightly club-shaped spindles, somewhat crowded but not exceedingly dense. Sclerites from the polyparium are 0,5–1,4 mm in length, whereas those from the stalk are 0,4–1,9 mm long. Most elongate spindles from the stalk are widest in the middle and taper toward both ends. Only a few scattered spindles may be present below the surface sclerites of the polyparium and stalk, contained in between gastric cavities. These sclerites are totally absent from the central interior region. Colour in life is vivid purple or magenta with polyps whitish, tentacles bright yellow, and stalk whitish. Colours fade to uniform dull greyish-yellow in alcohol.

### *Distribution*

This species is presently known from the Cape south coast, Danger Point to the eastern Cape Province, 30–50 m in depth (Williams 1988, in press *a*). Type locality is Danger Point.

### *Remarks*

This species may be confused with smaller colonies of *Acrophytum claviger* that are 70 mm in length, in which siphonozooids are not apparent. Larger colonies of *A. claviger* show obvious dimorphism. Colonies of *A. claviger* have densely set clubs and slightly clubbed spindles in the surface layer of the polyparium and stalk, 0,17–0,35 mm in length. *Pieterfaurea khoisaniana*, on the other hand, has comparatively sparsely set spindles in the surface of the polyparium. Many of these are slightly club-shaped. In the surface region of the stalk are many robust spindles that are widest medially with ends that taper markedly. All spindles are densely and ornately tuberculated, and vary from 0,4 to 1,9 mm in length. Anthocodial sclerites are absent in *Acrophytum claviger* but are present in *Pieterfaurea khoisaniana*.

This species is here provisionally transferred to the genus *Pieterfaurea* because of the possession of large tuberculate spindles in the surface of the stalk and polyparium as well as in the bases of the polyps, even though 'palisade-like' arrangements are not distinct.

### *Pieterfaurea unilobata* (Thomson, 1921)

Figs 37E–G, 38

*Sinularia* (*Sclerophytum*) *unilobata* Thomson, 1921: 172, fig. 5.

*Bellonella unilobata* Verseveldt, 1980: 11.

*Metalcyonium unilobatum* Williams, 1986b: 263, fig. 2B.

*Pieterfaurea unilobata* Verseveldt & Bayer, 1988: 67, figs 62–64.

### *Material*

SAM-H741 (paralectotype), off Umhloti River mouth, Natal (29°40'S 31°10'E), 73 m, 18 December 1900, 1 colony, large dredge, S.S. *Pieter Faure* survey, PF 10880.



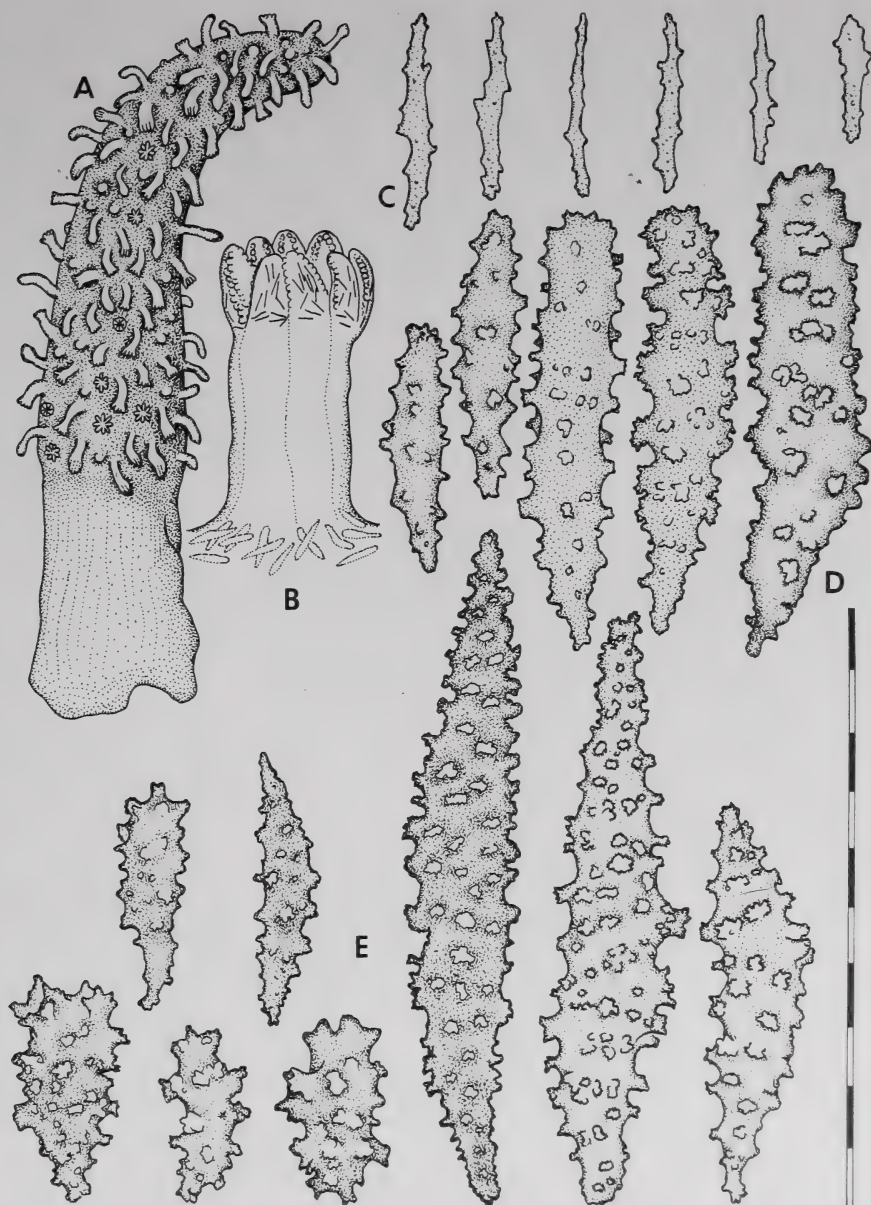


Fig. 36. *Pieterfaurea khoisaniana* (Williams, 1988). A. Entire colony (paratype), preserved, 90 mm total length. B. Single polyp showing arrangement of sclerites, total height of polyp 5 mm. C. Polyp sclerites. D. Sclerites from surface of polyparium. E. Stalk sclerites. C-E. Scale bar = 1,0 mm.

### Description

The colony examined is slightly damaged due to lengthy desiccation. The colony is 35 mm long and finger-like; a cylindrical polyparium arises from an upright stalk. Stalk length approximately 40–50 per cent of total colony length. Stalk and polyparium distinctly delineated. Anthocodiae retractile into permanent calyces. Anthocodial sclerites absent. Calyx sclerites are spindles 0,7–1,0 mm long. Surface of polyparium is densely spiculated with spindles or slightly clubbed spindles, mostly 0,4–1,0 mm in length. Surface of stalk with large robust spindles or slightly clubbed spindles 0,25–2,6 mm long. Similar large sclerites are common throughout the interior of the colony. Preserved colony colour brownish, sclerites white.

### Distribution

The species is known only from the east coast of southern Africa, from East London (eastern Cape Province) to the Durban region (Natal), 40–93 m (Williams in press a). Type locality unspecified.

### Remarks

*Pieterfaurea unilobata* is distinguished by the possession of conspicuous permanent conical protuberances formed by a palisade-like arrangement of large spindles; large tuberculate spindles and clubbed spindles are present throughout the surface as well as in the interior of the colony; anthocodial sclerites are absent.

The two species of *Pieterfaurea* can be differentiated as follows: *P. khoisaniana* has sclerites in the anthocodiae that form well-defined crown and points, in which the sclerites may be sparsely or densely disposed; the maximum length of the coenenchymal sclerites is 1,9 mm; sclerites are more sparsely disposed in the surface of the stalk and polyparium giving the colonies a softer, more flexible appearance; and the bases of expanded polyps are sparsely spiculated with a 'palisade-like' arrangement not well defined; the maximum size of colonies is 130 mm long by 50 mm wide; the colonies are mostly stout with the stalk usually comprising half or less of the total colony length; the species is apparently restricted to the Cape south coast from Danger Point to the eastern Cape. *Pieterfaurea unilobata*, on the other hand, does not possess sclerites in the anthocodiae; the maximum length of coenenchymal sclerites is 2,6 mm; sclerites of the surface of the colony are very dense giving the colonies a relatively stiff and rough appearance; and the bases of expanded polyps have sclerites that are densely arranged in a 'palisade-like' fashion; the maximum size of colonies is 50 mm long by 10 mm wide; the colonies are mostly narrow with the stalk usually comprising one-half or more of the total colony length; the species is apparently restricted to the South African east coast from East London to central Natal.

The placement of the genus *Pieterfaurea* in the Nidaliidae is here considered nominal as it also shares characteristics with the family Alcyoniidae. The

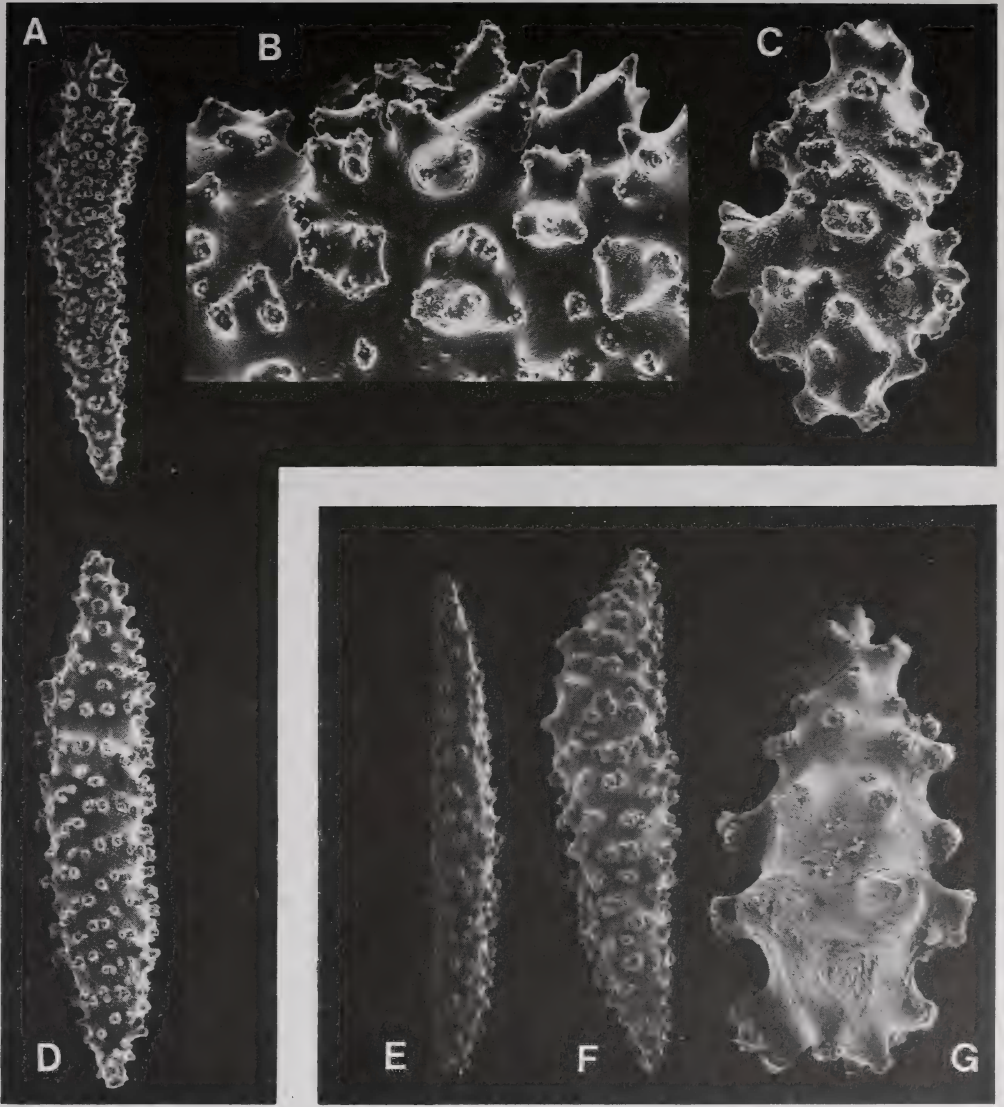


Fig. 37. Scanning electron micrographs. A-D. *Pieterfaurea khoisaniana* (Williams, 1988). A-B. Sclerites from the surface of the polyparium. A. 0,85 mm. B. Detail of surface tuberculation from a polyparium sclerite, total length of micrograph represents 0,24 mm. C-D. Sclerites from the surface of the stalk. C. 0,28 mm. D. 1,0 mm. E-G. *Pieterfaurea unilobata* (Thomson, 1921), sclerites from the surface of a colony. E. 1,0 mm. F. 0,70 mm. G. 0,24 mm.



'palisade-like' arrangement of sclerites at the base of the polyps do not represent true calyces (Verseveldt & Bayer 1988: 47, 66). *Alcyonium complanatum* Verseveldt, 1977, and *A. planiceps* Williams, 1986a, also do not possess calyces but do have large multi-tuberculate spindles that are longitudinally placed in the outer surface giving the colony a rough appearance, a feature used to define the Nidaliidae (Verseveldt & Bayer 1988: 47). Even though Verseveldt & Bayer (1988) considered *Pieterfaurea* to be a genus of the Nidaliidae, they at the same time included it in the key to the genera of the family Alcyoniidae, and not in the key to the nidaliid genera.

#### Genus *Siphonogorgia* K  lliker, 1874

*Siphonogorgia* K  lliker, 1874: 18. Verseveldt & Bayer, 1988: 48.

#### *Diagnosis*

Colonies branched and arborescent. Slender branches arise from a well-defined stalk. Surface of colonies brittle and rough. Polyps arise from the ends of terminal branches but are not present on the main branches or on the stalk. Polyps armed with well-developed crown and points. Sclerites are mostly tuberculated spindles.

A genus of perhaps twelve or more species from the Red Sea and Indo-Pacific.

*Type species.* *Siphonogorgia godeffroyi* K  lliker, 1874; Indo-Pacific.

#### *Remarks*

A single undetermined species has been collected by dredge from northern Natal between 62 m and 142 m in depth. This account represents a new record of the genus for southern Africa.

#### Family *Nephtheidae* Gray, 1862

Colonies lobate or arborescent, upright, with a distinct stalk. Polyps monomorphic, arranged individually or in clusters or catkins, along surface of branches and/or at the tips of ultimate branches. Sclerites often dense, mainly of spindles, clubs, and radiates.

A family of about 20 genera known world-wide; at least four genera represented in southern Africa.

#### Genus *Capnella* Gray, 1869

*Capnella* Gray, 1869: 129. Utinomi, 1960: 28. Tixier-Durivault, 1966: 233. Verseveldt, 1977: 184.

*Eunephthya* Verrill, 1869: 284. Utinomi, 1951: 28.

*Paranephthya* Wright & Studer, 1889: 227.

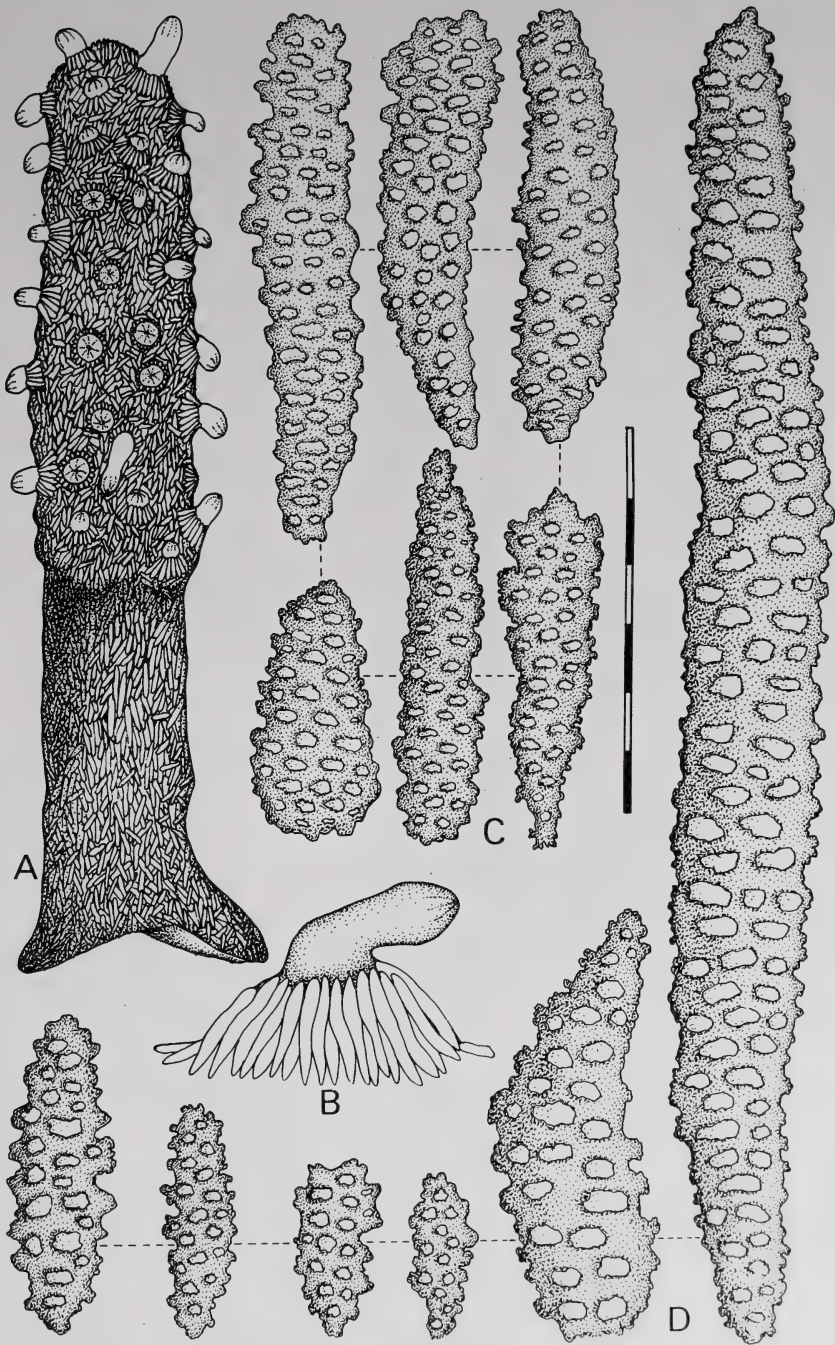


Fig. 38. *Pieterfaurea unilobata* (Thompson, 1921). A. An entire colony, 35 mm in length. B. A single polyp showing palisade-like arrangement of sclerites to form a permanent calyx; diameter of base of calyx = 2 mm. C. Sclerites from the calyx and surface of polyparium. D. Sclerites from surface of stalk. C-D. Scale = 0,6 mm.

*Diagnosis*

Colonies often arborescent, usually with multiply branched polyparium arising from a prominent stalk. Polyps in clusters, curved inward, without crown and points arranged en chevron. Sclerites scattered throughout polyps. Polyp sclerites include leaf-clubs and thorny spindles. Stalk sclerites include leaf-clubs and thorny spindles. Stalk sclerites are often irregular and compact radiate-like structures, frequently thorny.

A genus of perhaps 19 species, primarily Indo-Pacific and extending into the south-eastern Atlantic (Cape of Good Hope Peninsula).

*Type species.* *Alcyonium imbricatum* Quoy & Gaimard, 1833, by subsequent designation.

*Capnella susanae* Williams, 1988

Figs 39–40

*Capnella susanae* Williams, 1988: 19–26, figs 14–15, 16B, 17–19.

*Material*

SAM-H3717 (holotype), Hottentots Huisie, Cape of Good Hope Peninsula, South Africa (33°59'S 18°21'E), 15–18 m depth, 11 November 1984, 1 whole colony, SCUBA, G. C. Williams.

*Description*

The holotype is arborescent and somewhat digitiform, not luxuriantly bushy, <50 mm total length. Stalk and polyparium strongly demarcated. Polyparium inconspicuously and sparsely branched. Lateral branches <6 mm long. Polyps sometimes solitary but often clustered into groups of 2–20 (commonly 3–7). Polyps of these clusters joined proximally. Polyps elongate clavate, 2–3 mm in length, curved adaxially, non-retractile, but tentacles retractile into body of polyps. Polyparium sclerites are caterpillars, leaf clubs, and thorny spindles, <0,33 mm in length. Surface sclerites of stalk tuberculate spheroids of irregular shape, and capstan-like radiates, <0,15 mm in length. Radiates are densely set in gastric cavity walls of the colony interior, <0,12 mm in length. Colony colour pink in life, fading to dark grey or brown in alcohol.

*Distribution*

Known from the west coast of the Cape of Good Hope Peninsula to southern Transkei, between 15 and 70 m in depth (Williams 1988, in press a). Type locality is the west coast of the Cape Peninsula.

*Remarks*

*Capnella susanae* differs from other southern African nephtheids by digitiform growth habit, polyps 2–3 mm long distributed along finger-like polyparium, and sclerites <0,33 mm long.



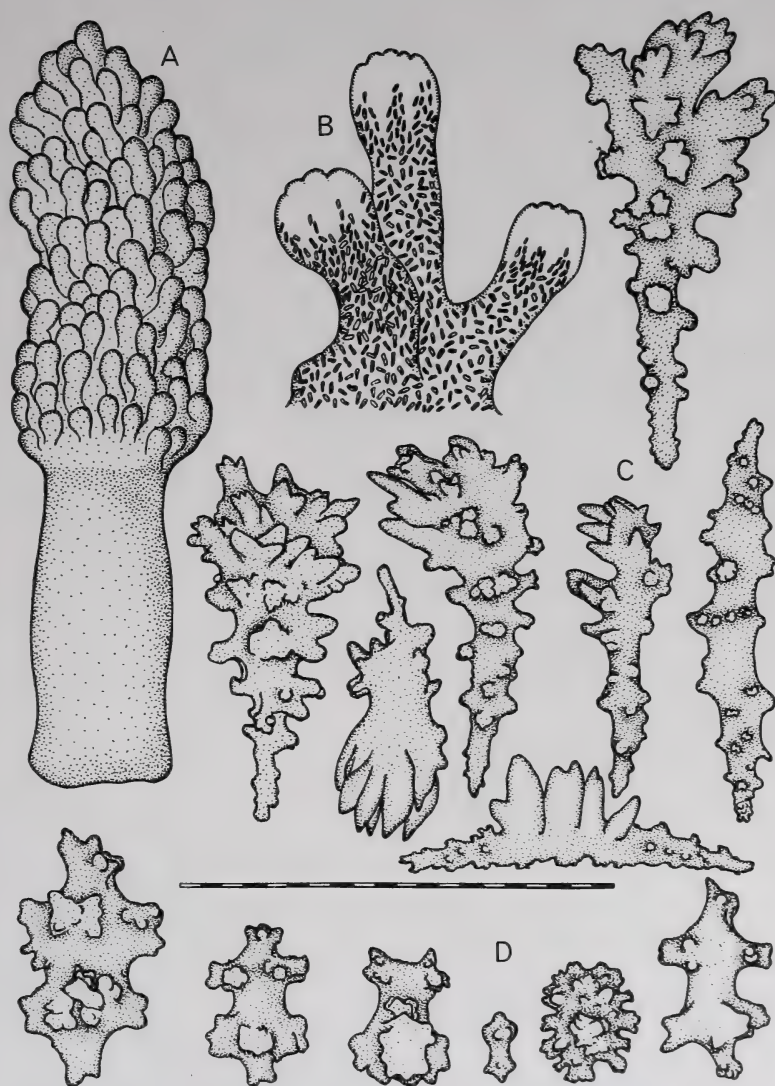


Fig. 39. *Capnella susanae* Williams, 1988. Entire colony 25 mm in length. B. Group of three polyps; central polyp is 3 mm in length. C. Sclerites from polyp wall. D. Sclerites from surface of stalk. C-D. Scale bar = 0,2 mm.

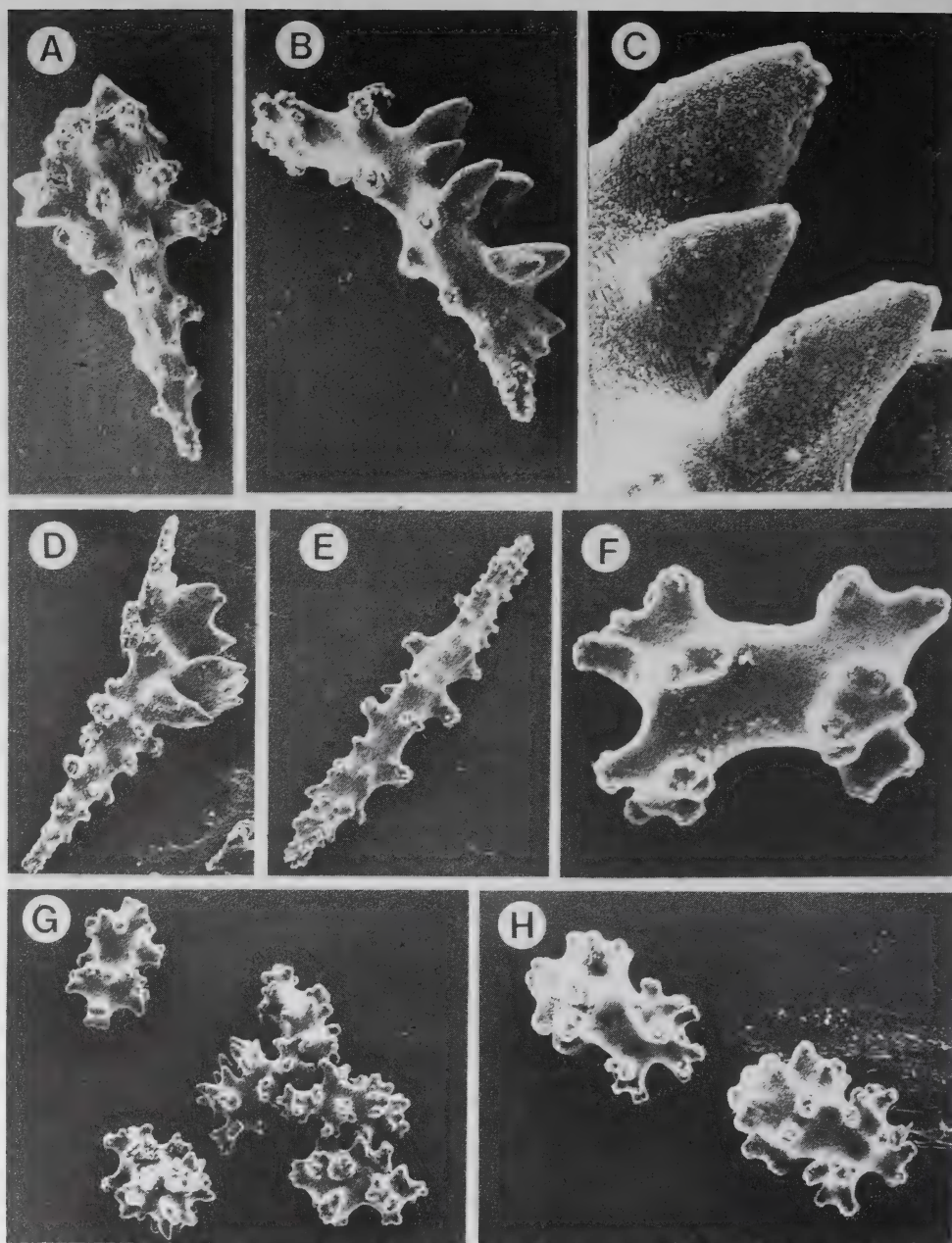


Fig. 40. Scanning electron micrographs of *Capnella susanae* Williams, 1988. A-E. Sclerites from polyp bases. A. 0,15 mm. B. 0,125 mm. C. 0,035 mm. D. 0,20 mm. E. 0,14 mm. F-H. Sclerites from surface of stalk. F. 0,07 mm. G. 0,07-0,09 mm. H. Both 0,075 mm.

*Capnella thyrsoidea* (Verrill, 1865)

Figs 1H–I, 41–42

*Nephthya thyrsoidea* Verrill, 1865: 1982.*Nephthya rugosa* Kükenthal, 1902: 299.*Capnella rugosa* Kükenthal, 1906: 68, pl. 3 (figs 12, 13), pl. 11 (figs 67–69). Thomson, 1910: 575, pl. 2 (fig. 10), pl. 4 (figs 42a–c). Broch, 1939: 12, fig. 9.*Capnella gilchristi* Thomson, 1910: 578, pl. 2 (fig. 11), pl. 4 (figs 40a–c).*Capnella thyrsoidea* Utinomi, 1960: 31. Verseveldt, 1977: 185. England & Robson, 1984: 313, figs 4C, 5C–D.*Material*

SAM–H917, Mossel Bay, Cape Province (22°15'S 34°10'E), 38 m, 24 June 1898, 2 colonies, shrimp trawl, coll. S.S. *Pieter Faure* survey, PF 88. SAM–H3385, off Danger Point, Cape Province (34°39'S 19°20'E), 39 m, 12 April 1984, 2 colonies, SCUBA, coll. W. R. Liltved, Sea Fisheries Research Institute, Line Fish Survey. SAM–H3415, Hottentots Huisie, Cape Peninsula (33°59'S 18°21'E), 14 m, 22 March 1984, 4 colonies, SCUBA, coll. G. C. Williams.

*Description*

Colonies examined are 15–170 mm long. Colonies upright, bushy arborescent, with an intricately branched polyparium arising from a prominent stalk. Stalk often robust, up to 30 mm in diameter and 40 mm in length. Polyparium wider than stalk, exuberantly branched. Polyp clusters arising from sides and apices of ultimate branches. Polyps extremely numerous, cylindrical or tear-shaped with distal portion sometimes slightly expanded; c. 1,0–2,0 mm in length. Sclerites of stalk are compact six-radiates (capstans), some approaching irregular spheroids with prominent tuberculation, 0,04–0,09 mm in length. Sclerites of the polyp clusters and calyces are elongate coarsely-tuberculate spindles, clubs and leaf-clubs, 0,12–1,2 mm long. Colour variable, brown to dark brown, light grey to smoke-grey, white to salmon to pinkish, or cream to yellowish.

*Distribution*

Apparently endemic to South Africa, west coast of the Cape of Good Hope Peninsula to the Durban region of Natal, 10–240 m in depth (Williams in press a). This species is one of the commonest octocorals in southern Africa, often seen by divers on vertical rock walls and reefs. It is probable that the distribution of this species extends into northern Natal (England & Robson 1984: 315). Type locality South Africa, detailed locality unspecified.

*Remarks*

The appearance of colonies of *C. thyrsoidea* differs remarkably depending on degree of contraction or expansion. Underwater observation of the species off the west coast of the Cape Peninsula (12–20 m depth) during daylight hours in turbid water, has revealed that in feeding posture the colonies are greatly



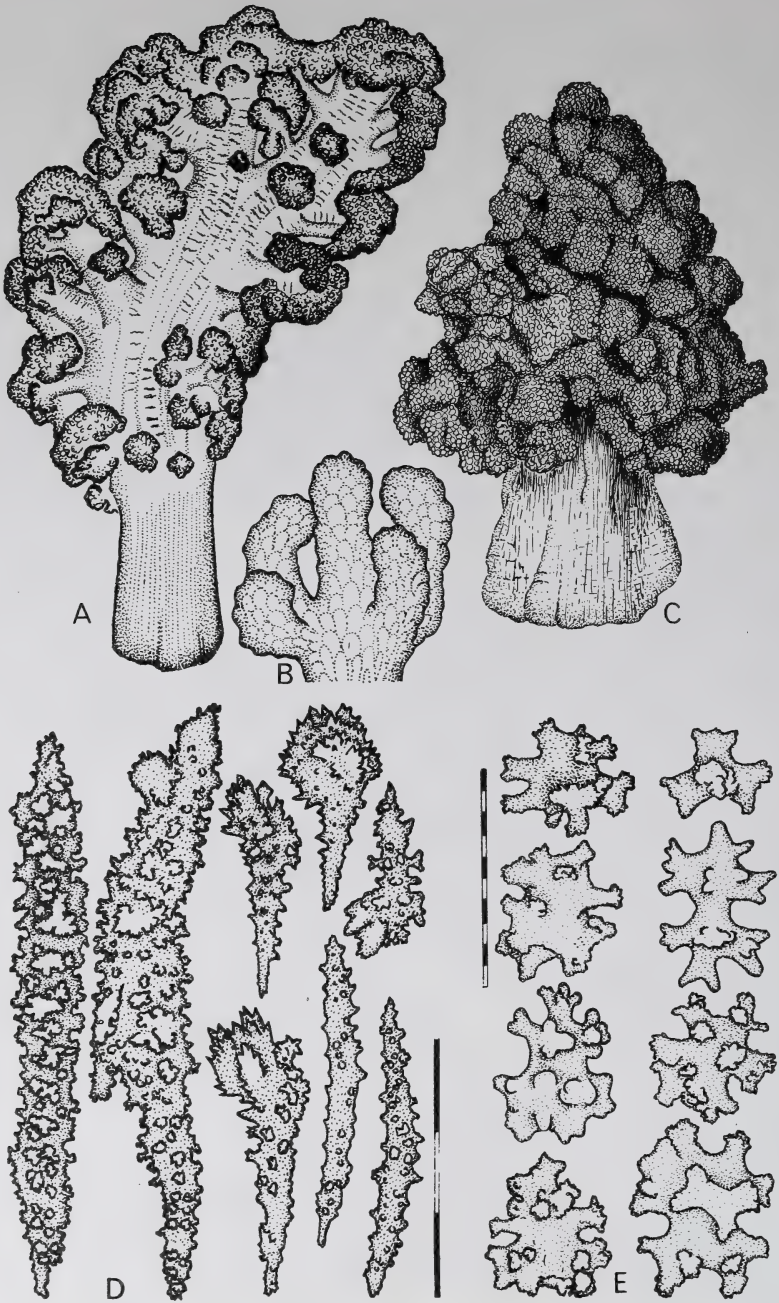


Fig. 41. *Capnella thyrsoidea* (Verrill, 1865). A. Entire colony, partially contracted, 135 mm in length. B. Detail from a group of five polyps; total length of figure 2,5 mm. C. Entire colony, tightly contracted, 105 mm in length. D. Sclerites from polyp wall. Scale bar = 0,3 mm. E. Stalk sclerites. Scale bar = 0,1 mm.

expanded and elongated, reaching up to 300 mm in length and 200 mm in width, very limp and flexible. The colonies have all branches elongated and exposed with the ultimate branches containing polyp clusters forming protuberances along the surface of the branches. During severe contraction, as in daylight hours in clear water or during preservation, the colonies are tightly compacted, stiff and rigid, resembling stalks of cauliflower, usually not more than 80 mm in total length.

A recently described and unusual species of ptychodactarian anemone, *Preactis millardae* England & Robson, 1984, representing a new anthozoan family (Preactiidae), has been shown to be a species-specific predator on *C. thyrsoidea* (England & Robson 1984: 313). The large anemone (up to 200 mm in length) is relatively mobile, using the lateral vesicles and pedal disc to temporarily adhere to various substrata. *Preactis millardae* is at present known only from the south-western Cape Province, in less than 20 m of water. The anemone apparently engulfs and digests whole polyparies of *C. thyrsoidea*, often leaving only the basal portion of the stalk remaining.

Macfadyen (1936: 51) recorded *C. rugosa* (a junior synonym of *C. thyrsoidea*) from the Australian Great Barrier Reef. This is probably a misidentification; examination of Macfadyen's material is necessary for verification. Verseveldt (1977) considered at least eight species of the genus *Capnella* to occur in Australia, *C. thyrsoidea* (= *C. rugosa*) not being one of them.

*Capnella thyrsoidea* is distinguished from *C. susanae* by the presence of bushy arborescent form with intricately branched polyparium, polyps 1–2 mm long, and sclerites up to 1.2 mm long.

#### Genus *Dendronephthya* Kükenthal, 1905

*Dendronephthya* Kükenthal, 1905: 667. Utinomi, 1952: 161; 1954: 319.

#### Diagnosis

Colonies are bushy and arborescent with a prickly or bristly appearance. Colonial growth form is umbellate, glomerate or divaricate. Polyps arranged in groups. Each polyp has a conspicuous supporting bundle of sclerites that usually projects far above the polyp. Sclerites are primarily tuberculate spindles.

A very large genus of over 250 described species, distributed in the Red Sea and the Indo-Pacific.

*Type species.* *Nephthya savignyi* Ehrenberg, 1834, by subsequent designation; Red Sea, Indo-Pacific.

#### Remarks

At least four undetermined species of this genus occur in Natal between Durban and Kosi Bay, 12–50 m in depth (Williams 1989a: 142; in press).

Tixier-Durivault & Prevorsek (1962: 70) described *Dendronephthya mutabilis* as *Morchellana mutabilis* from the Durban region of Natal, at 64–91 m in depth. Verseveldt (1960: 511) described *Dendronephthya inhacaensis* from



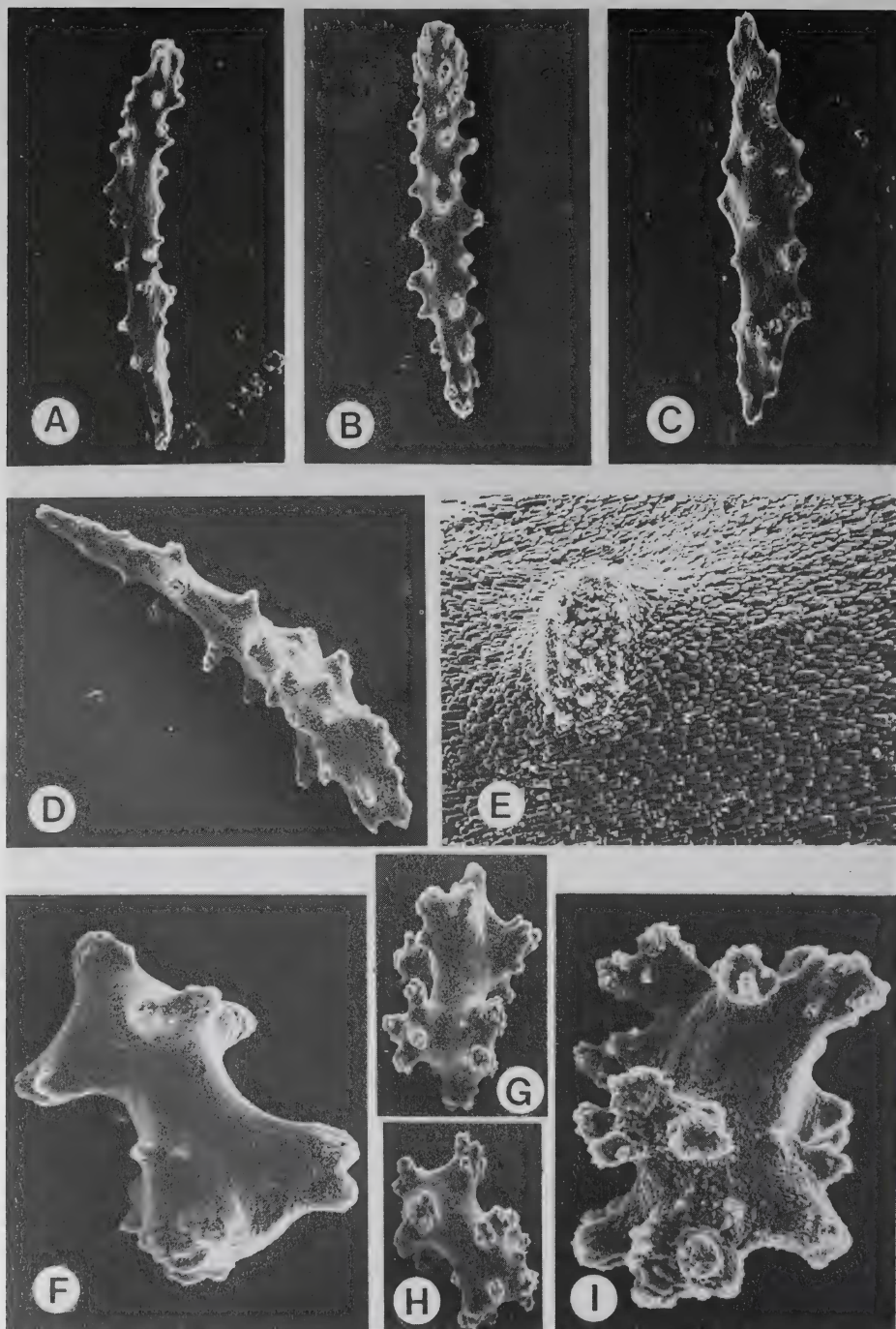


Fig. 42. Scanning electron micrographs of *Capnella thyrsoidea* (Verrill, 1865). A-I. Sclerites from polyp bases. A. 0,29 mm. B. 0,17 mm. C. 0,28 mm. D. 0,24 mm. E. 0,09 mm. F. 0,25 mm. G. 0,40 mm. H. Detail of surface tuberculation from sclerite shown in F; total length of micrograph = 0,07 mm. I. 1,0 mm. J-L. Sclerites from surface of stalk. J. 0,10 mm. K. 0,09 mm. L. 0,10 mm.



Inhaca Island, southern Mozambique; depth not recorded. The two species can be distinguished as follows: *D. mutabilis* has supporting bundles of one large projecting spindle whereas in *D. inhacaensis* the supporting bundles are composed of 3–5 large projecting spindles.

### Genus *Litophyton* Forskål, 1775

*Litophyton* Forskål, 1775: 139. Bayer, 1956: 188; 1981b: 913.

*Ammonothea* Savigny in Lamarck, 1816: 410.

*Litophytum* Agassiz, 1848: 616. Kükenthal, 1903: 105. Shann, 1912: 511. Light, 1915: 1.

#### *Diagnosis*

Colonies arborescent, branches arise from a single erect stalk. Polyps clustered in lappets or catkins on the terminal branches only, not present in other portions of colony. Colonies repeatedly branch distally. Surface of stalk and branches smooth. Polyps non-retractile, without supporting bundles. Sclerites of various types, but leaf clubs are not present.

Twenty or more species of the Indo-Pacific and the south coast of South Africa.

*Type species.* *Litophyton arboreum* Forskål, 1775; Indo-Pacific.

### *Litophyton liltvedi* Verseveldt & Williams, 1988

Figs 43–45

*Litophyton liltvedi* Verseveldt & Williams, 1988: 321–327, figs 2B, E, 4–8.

#### *Material*

SAM-H3400, off Danger Point (34°38'S 19°20'E), 39 m depth, 12 April 1984, 1 whole colony, SCUBA, coll. W. R. Liltved, Sea Fisheries Research Institute, Line Fish Survey. SAM-H3863, off Cape Agulhas (34°52'S 20°05'E), 54 m depth, 23 February 1985, 1 whole colony, SCUBA, coll. W. R. Liltved, Sea Fisheries Research Institute, Line Fish Survey.

#### *Description*

Colonies examined are 56–110 mm in height. From a common base several stems may arise, which repeatedly ramify distally. Colonies are cauliflower-like, with polyp-bearing regions of distal branchlets arising from a tall branching stalk, which is smooth and fleshy. Polyps are contained on the sides and apices of short lateral branches, as well as on the distal-most branchlets. The finely divided ultimate branchlets usually contain 3–12 polyps, giving the colony a luxuriantly bushy appearance. Ultimate branchlets are 3–8 mm long and 2–5 mm wide. Polyps are concentrated on distal portions of these branchlets. Tentacles are retractile into the body of the polyp. Polyps are tear-shaped (clavate) with global distal portions when contracted, or elongate-cylindrical when expanded, 1.5–3.0 mm long and 0.8–1.5 mm wide. Several ultimate

branchlets were observed with young polyps budding laterally from near the bases of adjacent polyps.

Sclerites are of three general types. The tentacles possess small irregular rod-like structures that may branch near the ends. These sclerites are 0,05–0,10 mm in length. Their arrangement in the tentacles was impossible to determine due to contraction. The polyp walls and branchlets contain spindles with fine but sparse tuberculation. These sclerites are 0,09–0,25 mm in length. Some of these may be slightly club-shaped. Those of the polyps are relatively robust spindles that may be somewhat curved with marginal protuberances more

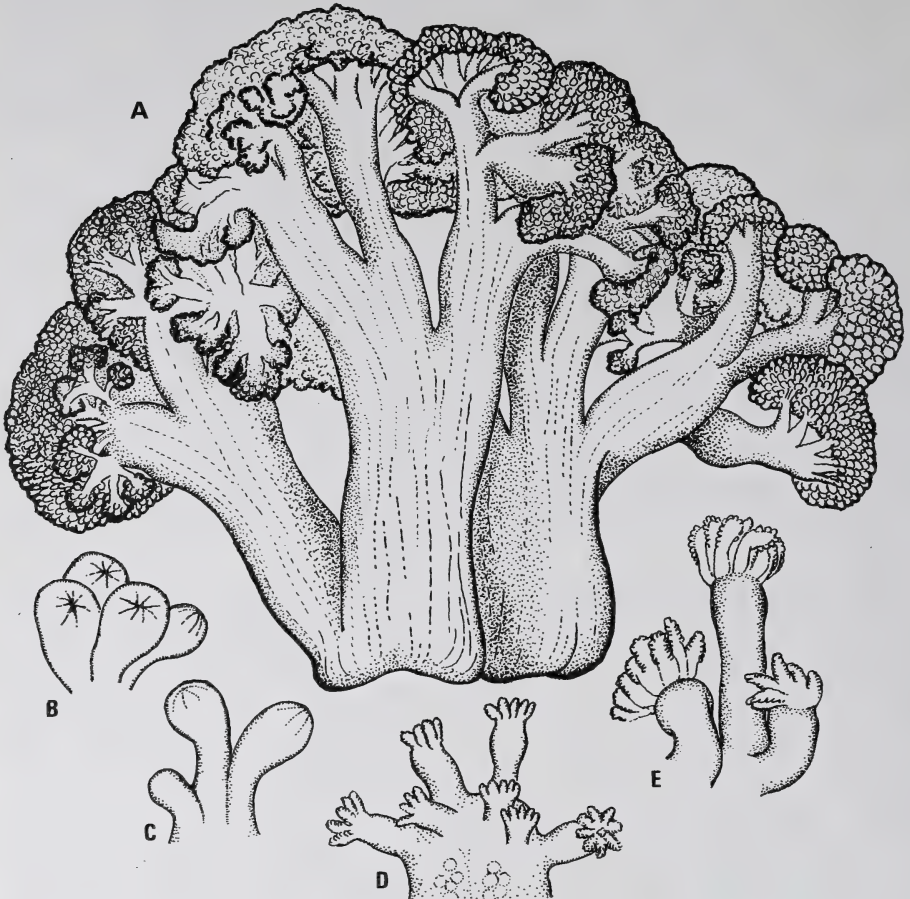


Fig. 43. *Litophyton liltvedi* Verseveldt & Williams, 1988. A. An entire colony, 110 mm in height. B–E. Four groups of polyps from terminuses of four separate ultimate branches. B. Group of four polyps with tentacles retracted into bodies of polyps, length 3,3 mm. C. Group of three polyps with tentacles retracted into bodies of polyps, 2,5 mm in length. D. Group of seven polyps; total length of figure 6 mm. E. Group of three polyps, total length of figure = 4,5 mm.

pronounced and numerous on the convex side. Sclerites of the ultimate branches are often slightly shorter than the polyp sclerites, usually  $<0,15$  mm long. The surface region of the stalk contains stout and irregular modified capstans, 0,05–0,13 mm long.

Colony colour is pale cream-white, both in life and in alcohol.

#### *Distribution*

The species is known only from the south coast of South Africa—Danger Point, Cape Agulhas, and Cape St Francis; 30–54 m in depth (Verseveldt & Williams 1988; Williams in press *a*); apparently endemic to southern Africa. This species is locally common on vertical rock walls off Cape St Francis, with a relatively dense population (approximately 5–8 colonies/m<sup>2</sup>—W. R. Liltved pers. comm.). Type locality is Danger Point, south-western Cape Province.

#### *Remarks*

*Litophyton liltvedi* is distinguished from other southern African nephtheids by having polyps clustered in catkins at ends of terminal branches, and sclerites of spindles and double stars.

#### Genus *Nephthea* Audouin, 1826

*Nephthea* Audouin in Savigny, 1826: 230. Tixier-Durivault, 1966: 271.

*Nephtya* Ehrenberg, 1834: 284. Kükenthal, 1903: 141. Shann, 1912: 510.

#### *Diagnosis*

Colonies copiously branched. Polyps are contained in lappets, catkins or bundles on the many branchlets. Each polyp has a supporting bundle of usually slender and more-or-less similarly-sized tuberculated spindles.

A large genus of the Indo-Pacific.

*Type species.* *Nephthea chabrolii* Audouin, 1826, by monotypy; Red Sea and Indo-Pacific.

#### *Remarks*

One unidentified species has recently been collected on the sublittoral coral reefs of northern Natal at 12–19 m in depth (Williams 1989*a*: 142; in press *b*). This account represents a new record of the genus to southern Africa.

#### *Other species of Nephtheidae*

Only five nephtheid species have been identified and recorded from southern Africa, these being *Capnella thyrsoidea*, *C. susanae*, *Litophyton liltvedi*, *Dendronephthya inhacaensis*, and *D. mutabilis*.

Material from at least three other species not presently identified to genus or species, occur from Saldanha Bay, False Bay, the eastern Cape Province to Transkei, and Sodwana Bay. This material is held in the South African Museum marine invertebrate collection.



Family **Xeniidae** Ehrenberg, 1828

Colonies membranous, lobate or capitate. Polyps monomorphic or dimorphic. All mesenterial filaments except the two asulcal ones are absent or rudimentary in mature polyps. Pinnules are in several rows on each side of tentacles. Sclerites are minute flattened oval rods or discs that are smooth, knobbly or granular and rough in appearance ( $<0,1$  mm long), or are completely absent. Many species possess symbiotic algae (zooxanthellae) in the gastrodermal tissues of the tentacles. Colour of tentacles in life is often blue, green, brown, grey, or yellowish.

Seven genera recognized world-wide, primarily in warm shallow seas of the Indo-West Pacific.

Genus *Anthelia* Savigny, in Lamarck, 1816

*Anthelia* Savigny, in Lamarck, 1816: 407. Roxas, 1933: 59. Gohar, 1940: 88. Utinomi, 1958: 98. Tixier-Durivault, 1966: 348.

*Diagnosis*

Colonies form membranous sheets from which individual polyps arise. Polyps not retractile. Sclerites, if present, are small ovoid or rod-like platelets  $<0,05$  mm in diameter, often granular or rough in surface texture.

Perhaps twenty or more species of the Red Sea and Indo-Pacific; littoral or shallow water.

*Type species.* *Anthelia glauca* Savigny, in Lamarck, 1816; Indo-Pacific.

*Remarks*

Three species of *Anthelia* have been recorded from southern Africa (Table 1). In addition, *Anthelia capensis* Studer, 1879, was described from the Cape of Good Hope at 91 m in depth. Studer gave only a brief description and a very generalized figure that lacked sufficient detail to define diagnostic characters or even to assign to a genus with certainty. According to him the outer polyp wall is smooth and soft, without grooves or ribs. The cylindrical polyps are weakly thorny spindles 0,2 mm long, and are thus consistent with those of the genus *Clavularia* (Clavulariidae) but quite unlike sclerites of the family Xeniidae. The colony colour is described as vermilion red. Studer's material is presently not available for examination.

Two presently undetermined species of *Anthelia* have recently been collected from Natal: a slate-grey species common on the sublittoral coral reefs of Sodwana Bay, 9–19 m in depth (Williams 1989a: 142; in press b); and a vivid blue species that is frequently encountered at Durban from the littoral to at least 3 m in depth (see Fig. 1D).

Genus *Cespitularia* Valenciennes, in Milne Edwards & Haime, 1850

*Cespitularia* Valenciennes, in Milne Edwards & Haime, 1850: lxxviii. Hickson, 1931: 162. Roxas, 1933: 103. Tixier-Durivault, 1966: 351.

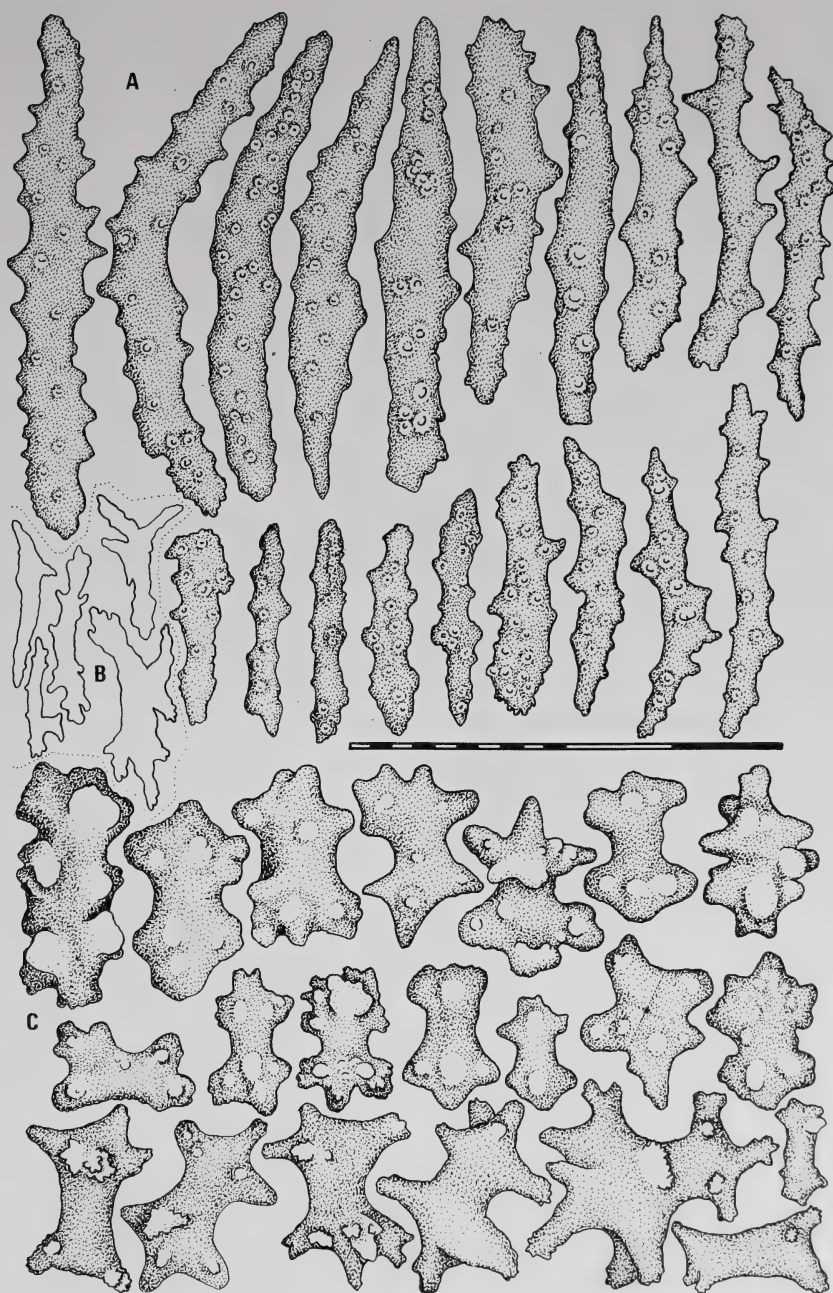


Fig. 44. *Litophyton liltvedi* Verseveldt & Williams, 1988. A. Sclerites from polyp walls and ultimate branches. B. Sclerites from tentacles. C. Stalk sclerites. Scale bar = 0,1 mm.

*Diagnosis*

Colonies are lobed and digitate; several lobes or branches arise from a common stalk. Polyps arise from different levels of the polyparium on several lobes and are non-retractile. Sclerites if present are minute, usually smooth round to oval rods or discs.

Perhaps ten or more species of the Red Sea and the Indo-Pacific.

*Type species.* *Cornularia multipinnata* Quoy & Gaimard, in Milne Edwards & Haime, 1850, by subsequent designation; Indo-Pacific.

*Remarks*

A single species of *Cespitularia* has been recorded from South Africa (Table 1), but no new material has been collected representing this genus.

*Genus Heteroxenia* Kölliker, 1874

*Heteroxenia* Kölliker, 1874: 12. Hickson, 1931: 168. Roxas, 1933: 95. Gohar, 1940: 101. Tixier-Durivault, 1966: 368.

*Diagnosis*

Colonies capitate; capitulum arises from an upright stalk. Polyps arise from a distinct terminal disc on the capitulum. Polyps dimorphic at least during breeding periods, non-retractile.

*Type species.* *Heteroxenia elisabethae* Kölliker, 1874, by subsequent designation, Red Sea and Indo-Pacific.

*Remarks*

Four species of *Heteroxenia* have been recorded for southern Africa (Table 1), but no new material has been collected that is assignable to this genus.

*Genus Xenia* Savigny, in Lamarck, 1816

*Xenia* Savigny, in Lamarck, 1816: 409. Hickson, 1931: 148. Roxas, 1933: 76. Gohar, 1940: 93. Tixier-Durivault, 1966: 358.

*Diagnosis*

Colonies are lobed and capitate; several polyps arise from the top of upright stalks or lobes. There may be one or several lobes in a colony but they do not arise from a common stalk. Polyps always monomorphic, non-retractile. Sclerites, if present, are mostly minute smooth rounded or irregular plates.

A genus of perhaps 30 or more species from the Red Sea and Indo-Pacific.

*Type species.* *Xenia umbellata* Savigny, in Lamarck, 1816; Red Sea, Indo-Pacific.



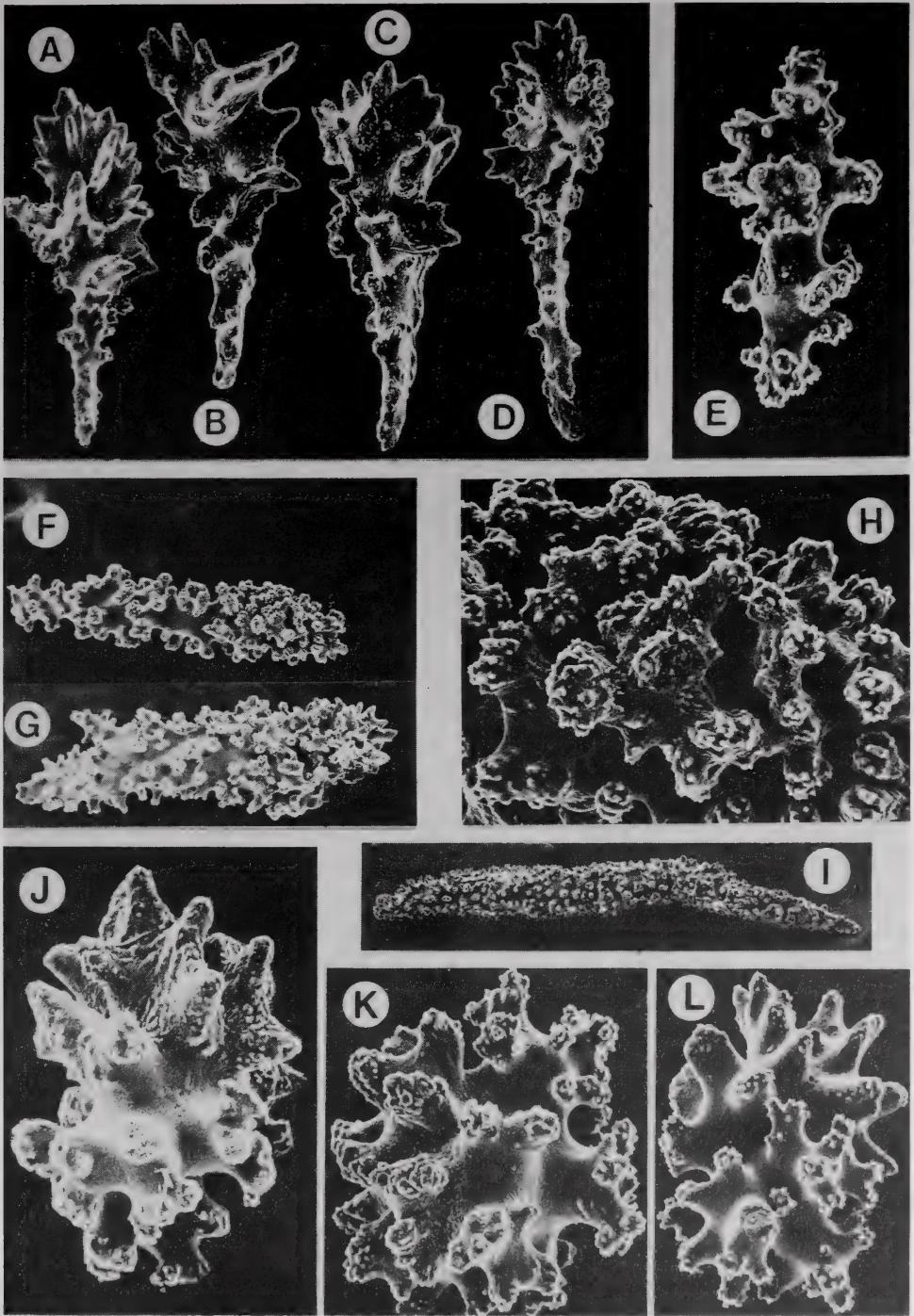


Fig. 45. Scanning electron micrographs of *Litophyton liltvedi* Verseveldt & Williams, 1988. A-E. Sclerites from the bases of the polyps. A. 0,235 mm. B. 0,26 mm. C. 0,208 mm. D. 0,19 mm. E. Detail of a single tubercle from a polyp sclerite; total length of micrograph = 0,09 mm. F-I. Sclerites from the surface of the stalk. F. 0,74 mm. G. 0,09 mm. H. 0,07 mm. I. 0,052 mm.

TABLE 1.  
Southern African genera and species of the family Xenidae.

Species	Location	Reference
<i>Anihelia flava</i> (May, 1899)	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)
<i>Anihelia glauca</i> Savigny, in Lamarck, 1816	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)
<i>Anihelia profunda</i> Tixier-Durivault, 1964	Indian Ocean, south-east of Durban (3 800 m)	Tixier-Durivault (1964: 57)
<i>Cespluliana coerulea</i> May, 1899	Inhaca Island, Mozambique	Tixier-Durivault (1960: 362)
<i>Heteroxenia elisabethae</i> Kolliker, 1874	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)
<i>Heteroxenia fuscescens</i> (Ehrenberg, 1834)	Inhaca Island, Mozambique	Tixier-Durivault (1960: 362)
<i>Heteroxenia membranacea</i> (Schenk, 1874)	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)
<i>Heteroxenia nigida</i> (May, 1899)	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)
<i>Xenia dayi</i> Tixier-Durivault, 1959	Port St Johns, Transkei	Tixier-Durivault (1959: 520)
<i>Xenia flonda</i> (Lesson, 1825)	Cape St Blaize, Cape Province: 201 m	Thomson (1921: 155)
<i>Xenia umbellata</i> Savigny, in Lamarck, 1816	Durban, Natal (littoral)	Broch (1939: 2)
<i>Xenia viridis</i> Schenk, 1896	Inhaca Island, Mozambique	Tixier-Durivault (1960: 361)

\* Broch (1939: 3) stated that this is most probably a misidentification and should be considered a dubious record.  
 \*\* Hickson (1931: 152) considered *X. viridis* and *H. membranacea* to be synonymous.

1A.	Colonies attached to substrata by basal stolons that are mainly ribbon-like or reticulate; or stolons form multi-layered platforms. Polyps separate, not grouped together by common swellings or globular polyparies . . . . .	2
1B.	Colonies without true stolons. Colonies attached to substrata by a basal holdfast or membranous sheets; if base stolon-like then adjacent polyps grouped together by a common swollen or globular polyparium, or base spreading and membranous, not ribbon-like . . . . .	10
2A.	Colonies arborescent. Anthocodiae not retractile into anthosteles. . . . .	<i>Coelogorgia palmosa</i>
2B.	Colonies not arborescent; polyps solitary or with secondary lateral polyps. Anthocodiae totally retractile into anthosteles . . . . .	3
3A.	Walls of anthostele brittle and inflexible, composed of permanently fused sclerites, or a mosaic of tightly fitting, flattened plates . . . . .	4
3B.	Walls of anthostele flexible, not brittle, composed of numerous free sclerites or clumps of partly fused sclerites . . . . .	7
4A.	Colonies heavily calcified, with lateral connections of multi-layered stolons that form successive platforms. Colonies form rounded clumps. Colour wine-red. . . . .	<i>Tubipora musica</i> (Fig. 6)
4B.	Polyps arise from stolons which adhere directly to substrata in one layer, not forming multiple layers. Colour whitish, pinkish, or brownish . . . . .	5
5A.	Anthosteles composed of separate flattened plates, tightly fitting together like a mosaic. . . . .	<i>Scleranthelia thomsoni</i> (Fig. 4)
5B.	Anthosteles composed of inseparably fused, tuberculated sclerites . . . . .	6
6A.	Anthocodia with 8 points of sclerites arranged longitudinally. Base of gastric cavity open, not forming a calcareous lattice of 8 canals. . . . .	<i>Bathytelesto tubuliporoides</i> (Fig. 2)
6B.	Anthocodial sclerites not arranged in 8 points. Base of gastric cavity forming a calcareous lattice of 8 canals . . . . .	<i>Scyphopodium ingolfi</i>



- 7A. Long axial polyps produce many lateral secondary polyps. Sclerites of polyp walls sometimes partly fused forming clumps ..... *Carijoa* sp.
- 7B. Polyps solitary or sometimes producing one lateral secondary polyp. Sclerites of polyp walls are free, not fusing to form clumps ..... 8
- 8A. Retracted polyps form low rounded or conical anthosteles, polyps may retract into stolons ..... *Sarcodictyon* sp.
- 8B. Retracted polyps form prominent cylindrical or tubular anthosteles .... 9
- 9A. Polyps long and tubular (often >10 mm), sometimes with lateral secondary polyps. Proximal part of gastric cavity filled with mesogleal material..... *Telestula* sp.
- 9B. Polyps cylindrical (usually <10 mm long), never with lateral secondary polyps. Proximal part of gastric cavities open..... *Clavularia* spp.
- 10A. Polyps of one type (monomorphic) ..... 19
- 10B. Polyps of two distinct types (dimorphic)..... 11
- 11A. Sclerites entirely absent or, if present, then of inconspicuous, flattened, ovate structures (usually <0,05 mm long), with smooth surfaces ..... 12
- 11B. Sclerites conspicuous, numerous and dense; of diverse form (>0,05 mm in length), with surface tuberculations ..... 13
- 12A. Tentacles with pinnules in several rows per side. Stalk without a rough horn-like cuticle. Sclerites present or absent. Polyps not retractile.....  
..... *Heteroxenia* spp.
- 12B. Tentacles with pinnules in a single row per side. Stalk covered by a rough horn-like cuticle. Sclerites altogether absent. Polyps retractile.....  
..... *Malacacanthus capensis* (Fig. 32)
- 13A. Colonies digitiform ..... 14
- 13B. Colonies distinctly capitate or with broad capitulum that are folded, lobed, or plicate ..... 15
- 14A. Sclerites are mostly clubs ..... *Acrophytum claviger* (Fig. 7)
- 14B. Sclerites are mostly capstans ..... *Minabea* sp.
- 15A. Colonies clavate to capitate. Capitulum spheroid or funnel form without open folds on margins. Deeper water (>50 m depth)..... 16
- 15B. Colonies with broad capitulum that are folded, lobed, or plicate. Shallow sublittoral (<30 m depth) of Natal and Mozambique ..... 18
- 16A. Colonies with sparsely spinose rods in the inner stalk and capitulum....  
..... *Anthomastus giganteus* (Fig. 27)
- 16B. Colonies without sparsely spinose rods in the inner stalk and capitulum  
..... 17
- 17A. Colony colour red-orange with yellow retracted polyps. Coenenchymal sclerites are barrels and tuberculate spheroids.....  
..... *Verseveldtia bucciniforme* (Fig. 35)
- 17B. Colony colour greyish-white with rust-orange retracted polyps. Coenenchymal sclerites are eight radiates .... *Verseveldtia trochiforme* (Fig. 33)

- 18A. Colonies fungiform or funnellform. Capitulum smooth or with open folds on margin ..... *Sarcophyton* spp.
- 18B. Colonies often low and encrusting or dish to bowl-shaped. Capitulum with closed folds or lobes or ridge-like plications ..... *Lobophytum* spp.
- 19A. Sclerites are absent, or are very sparse flattened rods (0,06–0,26 mm long); or if numerous, then are smooth, flattened ovate or rod-like forms (<0,05 mm long) ..... 20
- 19B. Sclerites numerous, dense, and conspicuous (>0,10 mm long), usually with conspicuous surface tuberculation ..... 23
- 20A. Sclerites are rods (0,06–0,26 mm long) confined to the neck zones of polyps and sometimes forming rings surrounding the bases of polyps. Tentacles with a single row of pinnules per side. Colour orange or brownish ..... *Alcyonium mutabiliforme* (Fig. 19)
- 20B. Sclerites absent or reduced to minute smooth circular, oval, or rod-like bodies, usually <0,05 mm long. Tentacles with two or more rows of pinnules per side, often vivid blue, slate grey, or greenish. Littoral or shallow sublittoral of the Indian Ocean (family Xeniidae) ..... 21
- 21A. Colonies membranous and flattened, without a basal stalk ..... *Anthelia* spp. (Fig. 1D)
- 21B. Colonies capitate or digitate, usually with a distinct stalk ..... 22
- 22A. Colonies capitate ..... *Xenia* spp.
- 22B. Colonies digitate ..... *Cespitularia* spp.
- 23A. Colonies branched repeatedly or multilobate (>10 ultimate lobes or branches) ..... 24
- 23B. Colonies membranous or creeping, capitate, digitiform, digitate, or few lobate (<10 ultimate lobes) ..... 33
- 24A. Surface of colony rough and stiff, due to large, narrow finely tuberculate spindles, densely packed and longitudinally placed. Polyps with conspicuous crown and points, retractile into calyces composed of elongate spindles ..... *Siphonogorgia* sp.
- 24B. Surface of colony usually smooth and soft, not packed with large, narrow longitudinally placed spindles; polyp calyces, if present, not composed of large, finely tuberculate spindles ..... 25
- 25A. Entire polyp capable of complete retraction into polyparium, or anthocodiae retractile into base of polyp that is either sparsely set with sclerites or without sclerites altogether. Polyps arise singly from surface of lobes or ultimate branches, adjacent polyps not joined together proximally .... 26
- 25B. Anthocodia retractile into a permanent calyx that is densely set with sclerites of variable form. Adjacent polyps clustered together, often forming a common base and joined proximally, polyp clusters distributed on sides and distal tips of branches (family Nephtheidae) ..... 30
- 26A. Sclerites are mostly spindles and/or clubs, 0,05–5,0 mm long ..... 27

- 26B. Sclerites are mostly small capstans, double stars, or tuberculate spheroids, 0,03–0,15 mm long ..... 28
- 27A. Polyparium with complex plications or with digitate lobes often long, thick and tapering distally. Polyps cover entire surface of lobes or plications, often preserved totally retracted. Sclerites are small clubs (0,06–0,2 mm long); and large, robust, coarsely tuberculated spindles (0,5–5,0 mm long) ..... *Sinularia* spp.
- 27B. Polyparium repeatedly ramifies distally. Polyps confined to ultimate branches in the distal-most portion of colony. Sclerites are spindles with sparse tuberculation (0,09–0,25 mm long), and irregularly shaped, modified capstans (0,05–0,13 mm long) ..... *Litophyton liltvedi* (Figs 43–44)
- 28A. Sclerites are primarily double stars or double heads (0,03–0,08 mm long) ..... *Cladiella* spp.
- 28B. Sclerites are primarily capstans or tuberculate spheroids (0,03–0,15 mm long) ..... 29
- 29A. Sclerites are capstans distributed throughout the surface region of the polyparium and stalk (0,03–0,065 mm long) ..... *Alcyonium valdiviae* (Fig. 22)
- 29B. Sclerites are primarily tuberculate spheroids restricted to the surface of the stalk (0,08–0,15 mm long) ..... *Alcyonium distinctum* (Fig. 9)
- 30A. Individual polyps each with a supporting bundle of spindles ..... 31
- 30B. Individual polyps without a supporting bundle of spindles ..... 32
- 31A. Supporting bundle of spindles conspicuously projects beyond the polyp. Colonies brightly coloured; white with red, orange, yellow, or maroon ..... *Dendronephthya* spp.
- 31B. Supporting bundle of spindles does not project beyond each polyp. Colonies uniform cream-coloured ..... *Nephthea* sp.
- 32A. Sclerites of the polyps and branchlets are mostly leaf clubs and robust tuberculate spindles (0,12–1,2 mm long) .. *Capnella thyrsoides* (Fig. 41)
- 32B. Sclerites of the polyps and branchlets are mostly leaf clubs, caterpillars, and thorny spindles (0,12–0,33 mm long) .... *Capnella susanae* (Fig. 39)
- 33A. Polyps relatively few (usually <20) restricted to distal and sometimes flattened terminal surface of colony ..... 34
- 33B. Polyps numerous (usually <20), dispersed over entire surface of a globular, lobate, or finger-like polyparium ..... 35
- 34A. Polyps with numerous red needle-like sclerites. Sclerites of polyparium and stalk are mostly capstans. Stalk without a cuticular envelope. Colony colour permanent ..... *Alcyonium elegans* (Fig. 11)
- 34B. Polyp sclerites absent. Colony sclerites are exclusively large, robust tuberculate spindles restricted to surface of stalk and sides of capitulum. Stalk covered with a thin cuticular envelope. Colony colour alcohol-soluble ..... *Alcyonium planiceps* (Fig. 21)



- 35A. Colonies digitate, polyparium of several slender finger-like processes arising from a prominent basal stalk ..... *Eleutherobia rotifera* (Fig. 29)
- 35B. Colonies capitate, digitiform, lobate, globular, membranous or encrusting ..... 36
- 36A. Colonies digitiform or capitate ..... 37
- 36B. Colonies lobate, globular, membranous to encrusting ..... 45
- 37A. Colonies excluding polyps are digitiform (finger-like) ..... 38
- 37B. Colonies excluding polyps are capitate (fungiform) ..... 43
- 38A. Bases of retracted polyps often form globular swellings or conical to cylindrical calyces or palisade-like arrangements of spindle-like sclerites ..... 39
- 38B. Polyps without calyces or palisade-like arrangements of spindle-like sclerites; entire polyp capable of complete retraction into polyparium . 42
- 39A. Polyp bases form conical calyces by the palisade-like arrangement of large spindle-shaped sclerites ( $>0,3$  mm long) ..... 40
- 39B. Polyp bases globular, low and hemispherical or tall and cylindrical to clavate. Calyx wall filled with small sclerites ( $<0,3$  mm in length) .... 41
- 40A. Palisade-like arrangement of sclerites in retracted polyps strongly developed with sclerites erect and densely set. Anthocodial sclerites absent. Maximum length of coenenchymal sclerites is 2,6 mm ..... *Pieterfaurea unilobata* (Fig. 38)
- 40B. Palisade-like arrangement of sclerites in retracted polyps is weakly developed with sclerites sparsely or irregularly arranged. Anthocodial sclerites present. Maximum length of coenenchymal sclerites is 1,9 mm ..... *Pieterfaurea khoisaniana* (Fig. 36)
- 41A. Polyp bases low and globular, low and rounded. Adjacent polyps are solitary and arise directly from polyparium. Colony colour permanent ..... *Alcyonium moriferum* (Fig. 18)
- 41B. Calyces elongate cylindrical or slightly clavate. Adjacent polyps often clustered together with common bases. Colony colour alcohol-soluble ..... *Capnella susanae* (Fig. 39)
- 42A. Sclerites are exclusively tuberculated spheroids ( $<0,1$  mm long) ..... *Alcyonium moriferum* (Fig. 18)
- 42B. Sclerites are predominantly clubs with spheroid heads and narrow pointed handles ( $<0,35$  mm long) ..... *Acrophytum claviger* (monomorphic colonies) (Fig. 7)
- 43A. Fully retracted polyps form flexible and circular cup-like or disc-like calyces ..... *Eleutherobia studeri* (Fig. 31)
- 43B. Fully retracted polyps form low rounded, protuberances on the surface of the capitulum or are completely retractile into the capitulum; not forming cup-like calyces ..... 44

- 44A. Some sclerites are tuberculate spheroids, double heads, or ovoid forms. Colony colour alcohol-soluble. .... *Alcyonium fauri* (capitate form) (Figs 13–14)
- 44B. Sclerites are clubs, capstans, spindles, and needles; no globular or ovoid forms. Colony colour permanent ..... *Alcyonium variabile* (Fig. 24)
- 45A. Sclerites are entirely elongate, tuberculated clubs and spindles; no globular, ovoid, or foliate forms or double heads present. .... *Alcyonium wilsoni* (Fig. 26)
- 45B. Sclerites diverse, but many are globular, ovoid, or distinctly foliate forms or double heads ..... 46
- 46A. Many sclerites are distinctive foliate forms and double heads. Colonies usually encrusting soft substrata such as sponges. .... *Alcyonium foliatum* (Fig. 16)
- 46B. Some sclerites are globular or ovoid tuberculate forms or double heads, no foliates present. Colonial growth form variable: globular, lobate, or membranous; usually on hard substrata such as rock, shell, and dead or living corals ..... *Alcyonium fauri* (Figs 13–14)

LIST OF SOFT CORALS AND STOLONIFEROUS OCTOCORALS  
RECORDED FROM SOUTHERN AFRICA

Order *ALCYONACEA* Lamouroux, 1816; amended by Bayer, 1981*b*.

Family **Clavulariidae**

Subfamily Clavulariinae

- \* *Clavularia cylindrica* Wright & Studer, 1889
- \* *Clavularia diademata* Broch, 1939
- \* *Clavularia elongata* Wright & Studer, 1889
- \* *Clavularia parva* Tixier-Durivault, 1964
- \*\* *Clavularia* spp.
- *Bathytelesto tubuliporoides* Williams, 1989*b*
- † *Scyphopodium ingolfi* (Madsen, 1944)

Subfamily Sarcodictyoninae

- \*\* *Sarcodictyon* sp.
- *Scleranthelia thomsoni* Williams, 1987*a*

Subfamily Telestinae

- \*\* *Carijoa* sp.
- \* *Telesto arborea* Wright & Studer, 1889
- \*\* *Telestula* sp.

Family **Tubiporidae**

- *Tubipora musica* Linnaeus, 1758

Family **Coelogorgiidae**

- \* *Coelogorgia palmosa* Milne Edwards & Haime, 1857

Family **Alcyoniidae**

- *Acrophytum claviger* Hickson, 1900
- *Alcyonium distinctum* Williams, 1988
- *Alcyonium elegans* (Kükenthal, 1902)
- *Alcyonium fauri* Thomson, 1910
- *Alcyonium foliatum* Thomson, 1921
- \*\* *Alcyonium 'glomeratum'* (Hassall, 1843)
- \* *Alcyonium membranaceum* Kükenthal, 1906
- *Alcyonium moriferum* (Tixier-Durivault, 1954)
- *Alcyonium mutabiliforme* Williams, 1988
- *Alcyonium planiceps* Williams, 1986a
- \* *Alcyonium reptans* Kükenthal, 1906
- \* *Alcyonium roseum* (Tixier-Durivault, 1954)
- \*\* *Alcyonium 'rubrum'* (Brundin, 1896)
- \*\* *Alcyonium sarcophytoides* Burchardt, 1903
- \*\* *Alcyonium sollasi* Wright & Studer, 1889
- *Alcyonium valdiviae* Kükenthal, 1906
- *Alcyonium variable* (Thomson, 1921)
- *Alcyonium wilsoni* Thomson, 1921
- *Anthomastus giganteus* Tixier-Durivault, 1954
- \* *Anthomastus hicksoni* Bock, 1938
- \* *Cladiella madagascarensis* (Tixier-Durivault, 1944)
- \*\* *Cladiella* sp.
- *Eleutherobia rotifera* (Thomson, 1910)
- *Eleutherobia studeri* (Thomson, 1910)
- \* *Lobophytum crassum* von Marenzeller, 1886
- \* *Lobophytum crebiplicatum* von Marenzeller, 1886
- \*\* *Lobophytum* spp.
- *Malacacanthus capensis* (Hickson, 1900)
- \*\* *'Metalcyonium' 'clavatum'* Pfeffer, 1889
- † *'Metalcyonium' lanceatum* Thomson, 1921
- \* *'Metalcyonium' molle* Burchardt, 1903
- \* *'Metalcyonium' novarae* Kükenthal, 1906
- \*\* *Minabea* sp.
- \* *Sarcophyton trocheliophorum* von Marenzeller, 1886
- \*\* *Sarcophyton* spp.
- \* *Sinularia polydactyla* (Ehrenberg, 1834)
- \*\* *Sinularia* spp.
- *Verseveldtia bucciniforme* Williams, 1990b
- *Verseveldtia trochiforme* (Hickson, 1900)



Family **Nidaliidae**

- *Pieterfaurea khoisaniana* (Williams, 1988)
- *Pieterfaurea unilobata* (Thomson, 1921)
- \*\* *Siphonogorgia* sp.

Family **Nephtheidae**

- *Capnella susanae* Williams, 1988
- *Capnella thyrsoidea* (Verrill, 1865)
- \* *Dendronephthya inhacaensis* Verseveldt, 1960
- \* *Dendronephthya mutabilis* (Tixier-Durivault & Prevorsek, 1962)
- \*\* *Dendronephthya* spp.
- *Litophyton liltvedi* Verseveldt & Williams, 1988
- \*\* *Nephthea* sp.

Family **Xeniidae**

- \* *Anthelia flava* (May, 1899)
- \* *Anthelia glauca* Savigny, in Lamarck, 1816
- \* *Anthelia profunda* Tixier-Durivault, 1964
- \*\* *Anthelia* spp.
- \* *Cespitularia coerulea* May, 1899
- \* *Heteroxenia elisabethae* K  lliker, 1874
- \* *Heteroxenia fuscescens* (Ehrenberg, 1834)
- \* *Heteroxenia membranacea* (Schenk, 1896)
- \* *Heteroxenia rigida* (May, 1899)
- \* *Xenia dayi* Tixier-Durivault, 1959
- \* *Xenia florida* (Lesson, 1825)
- \*\* *Xenia* spp.
- \* *Xenia umbellata* Savigny, in Lamarck, 1816
- \* *Xenia viridis* Schenk, 1896

## Incertae sedis

- \* *Anthelia capensis* Studer, 1879

\* Literature record only; adequate material not available for study.

\*\* Species indeterminate; material available but status uncertain or unidentifiable at present.

◦ Described and illustrated in the present work.

† Identified, but material is partial or damaged or otherwise not adequate for full description.

## SUMMARY AND CONCLUSION

The present study represents the first comprehensive survey of the known soft coral and stoloniferous octocoral fauna for all of southern Africa. Of at least sixty species presently recorded in the literature, 26 species, 27 genera, and seven families are here considered to be valid.

Several species remain indeterminate or of uncertain status due to one or more factors: (1) the lack of availability of type material for comparison with previously described species, either because of lack of response or co-operation from a particular source, or not knowing the whereabouts of type material or even if a type specimen exists; (2) the lack of sufficient detail pertaining to the original descriptions of many species; (3) the lack of availability of certain literature references and problems such as delays or lack of co-operation from sources of inter-library loans; (4) the damaged or inadequate nature of available material pertaining to a given species, or (5) in some cases a large-scale revision of a given group may be necessary in order to accurately identify an individual species.

The genera *Sarcodictyon*, *Telestula*, *Carijoa*, *Minabea*, *Siphonogorgia*, and *Nephthea* are here recorded from southern Africa for the first time.

Approximately 90 species of soft corals and stoloniferous octocorals are presently estimated to occur in southern African coastal regions. This number is subject to change as future studies will undoubtedly reveal many unrecorded and undescribed species. Detailed examination of the fauna from the west coast Atlantic and east coast Indian Ocean regions is still necessary.

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